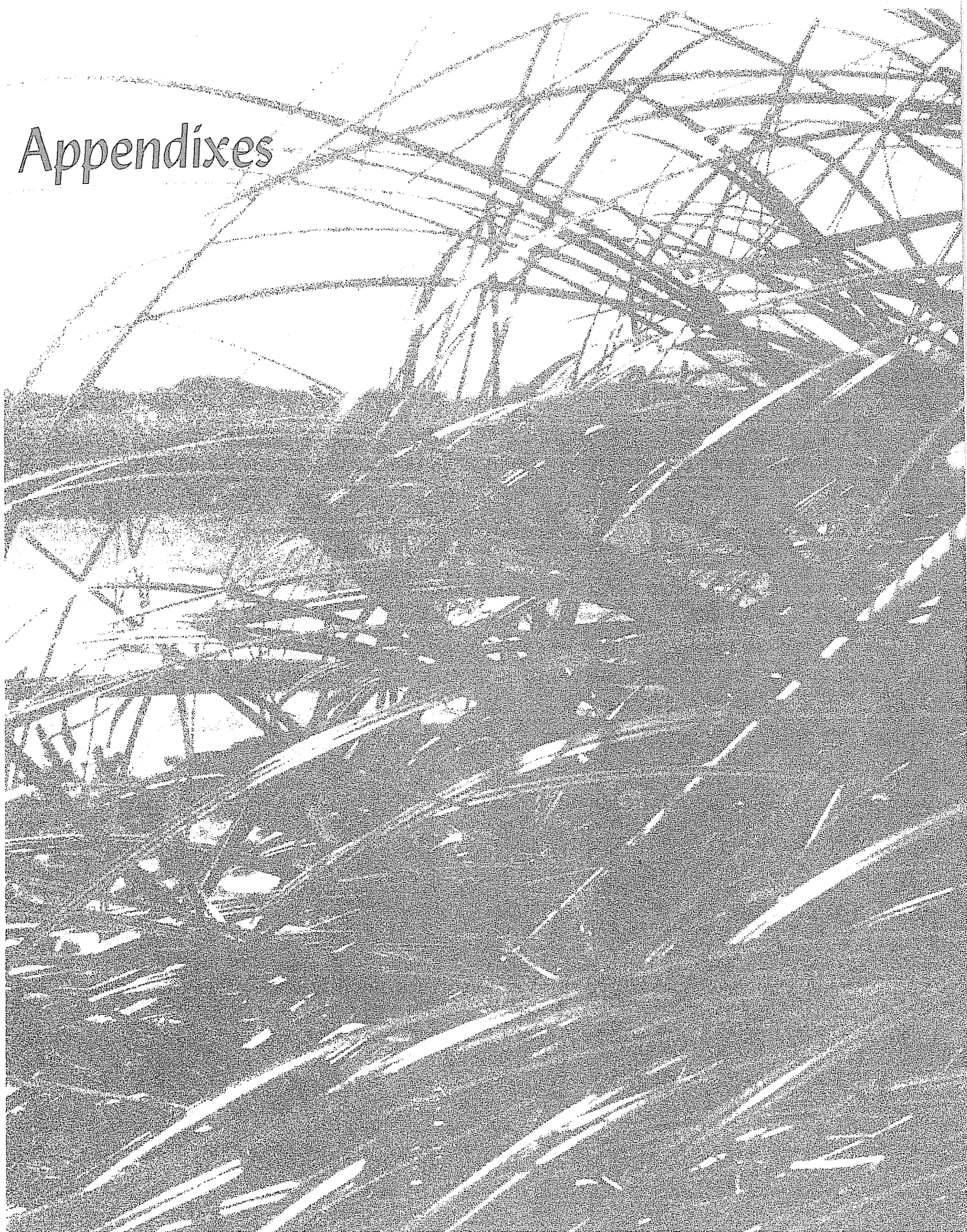


Appendixes



APPENDIX A

Candlestick Point Public Involvement Program

The Candlestick Point Public Involvement Program consists of six basic steps:

1. Project Initiation

Upon assignment of this project in the summer of 1977, planners met with community leaders of the San Francisco Bay Area and the established Citizen's Advisory committee, who suggested approaching the public involvement process by having the planners invited to community/neighborhood meetings. At the community meetings, the planning process was explained through a slide show, and public concerns were heard.

2. Data Collection

This phase consisted of gathering the necessary site and recreation resource information. It included information on the public's needs, desires, and concerns, and bay area government concerns.

3. Analysis

All data collected were organized, mapped, and analyzed. A list of more than 130 recreation potentials was generated as a result of the first series of public involvement workshops. The top ten desired recreation activities were identified as:

- 1) General Picnicking
- 2) Boat Facilities
- 3) Fishing Piers
- 4) Bike Trails
- 5) Children's Play Area
- 6) Amphitheater
- 7) Hiking Trails
- 8) Open Space For Wildlife
- 9) Handicapped Area
- 10) Swimming Beach

These results were released in a newsletter sent to more than 1,100 people on the Candlestick Point mailing list.

4. Development of Alternatives

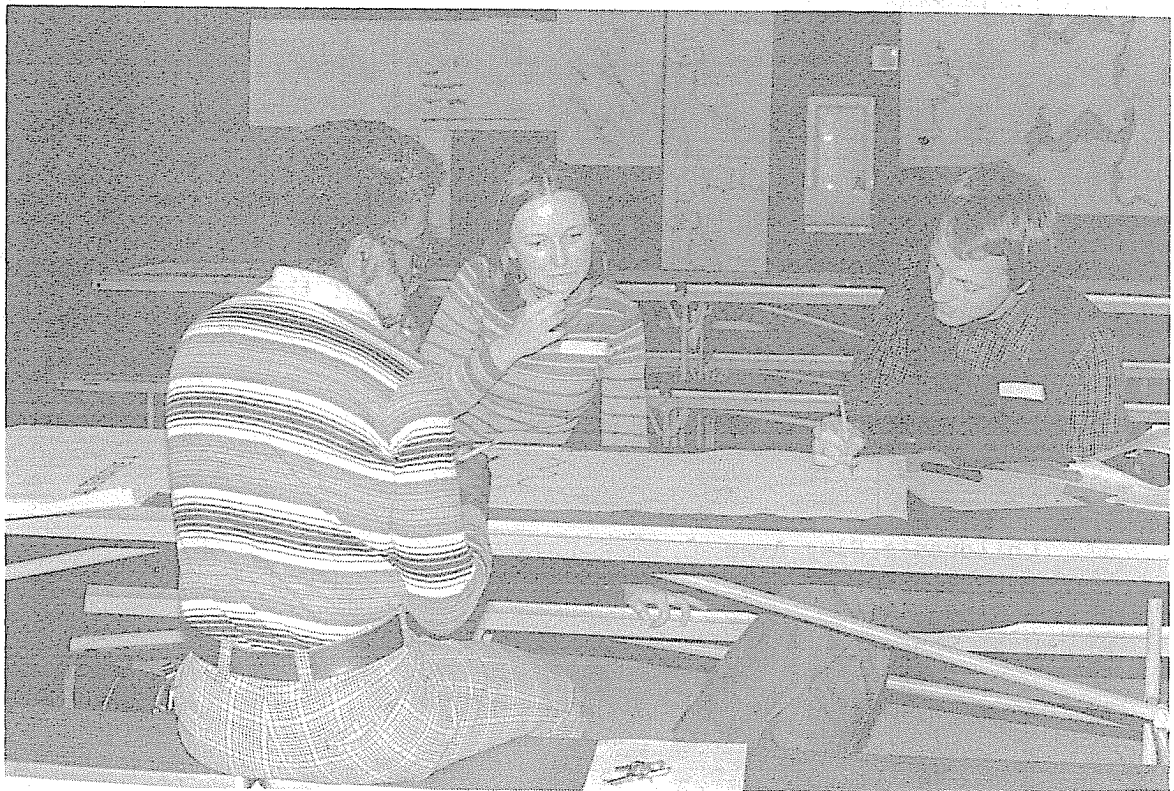
The planning team spent one week developing four alternatives, which consisted of two recreation alternatives, a cultural/community alternative, and an alternative that emphasized natural factors -- restoration of the mudflats/marsh land habitat.

5. Public Review of Alternatives

In a series of public involvement workshops conducted at seven locations, planners presented the alternatives to the public. The public then "mixed and matched" features from the various alternatives. Results obtained from these workshops indicated the public's desire for a natural (alternative 4), open, landscaped state recreation area, with elements of recreation alternative 2 and cultural/community alternative 3.

6. Preliminary Single Plan

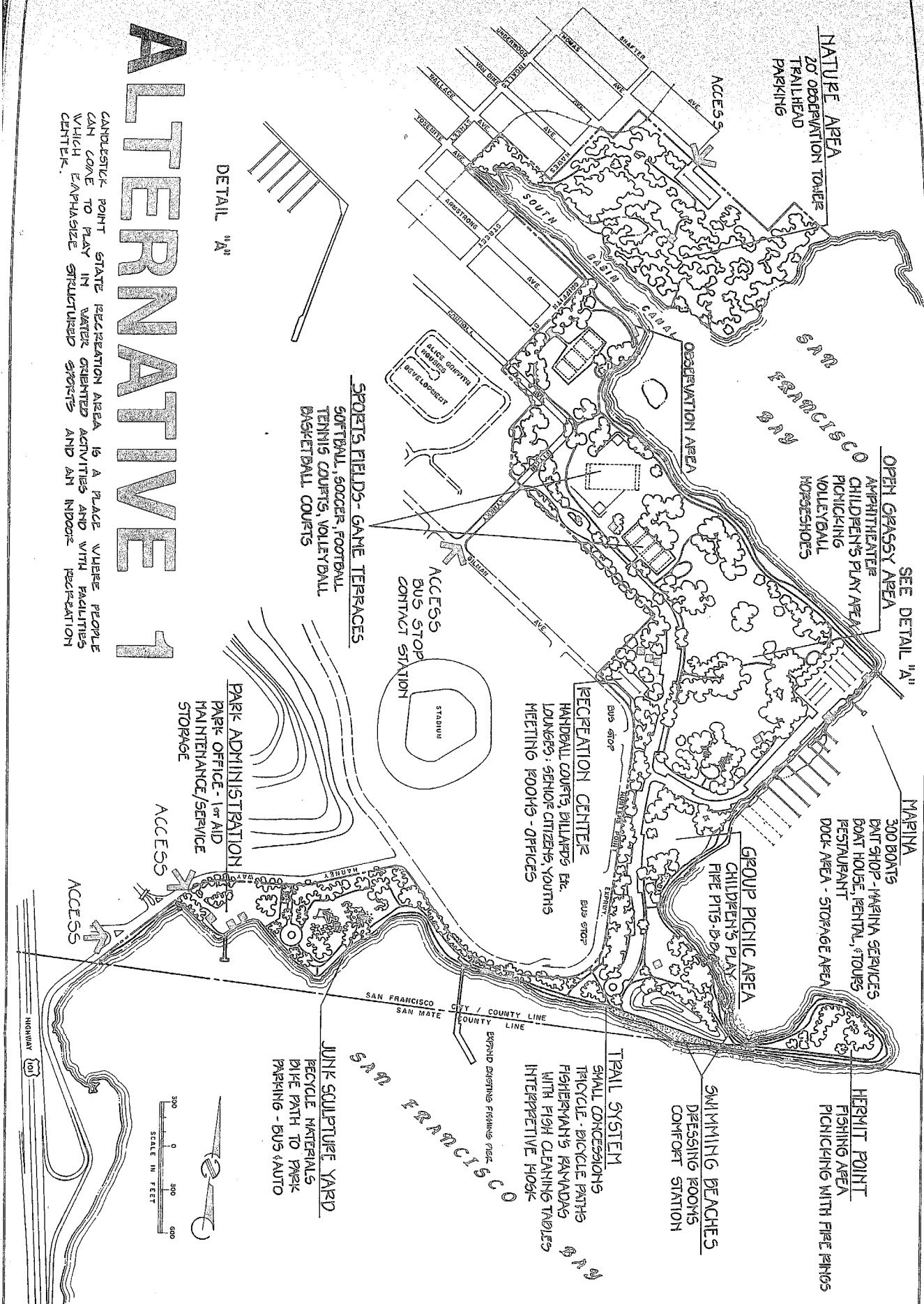
A single plan reflecting these values was compiled and presented to the public at four additional workshops. Those who attended this last series of workshops made a few suggestions, additions, and revisions, but were proud of the outcome, efforts, and results.



ALTERNATIVE 1

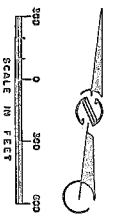
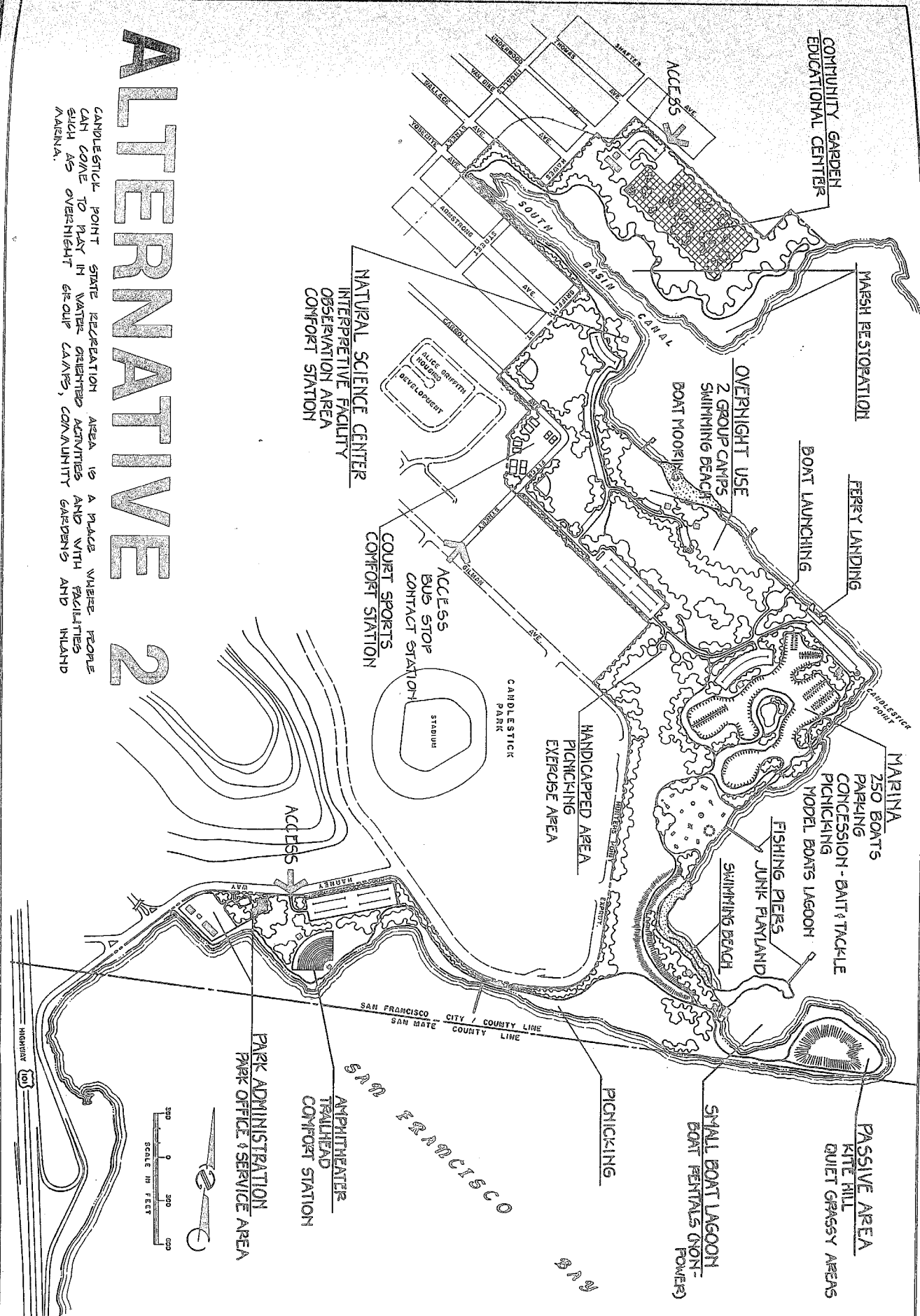
CANDLESTICK POINT STATE RECREATION AREA IS A PLACE WHERE PEOPLE CAN COME TO PLAY IN WATER ORIENTED ACTIVITIES AND WITH FACILITIES WHICH EMPHASIZE STRUCTURED SPORTS AND AN INDOOR RECREATION CENTER.

DETAIL "A"



ALTERNATIVE 2

CANDLESTICK POINT STATE RECREATION AREA IS A PLACE WHERE PEOPLE CAN COME TO PLAY IN WATER ORIENTED ACTIVITIES AND WITH FACILITIES SUCH AS OVERNIGHT GROUP CAMPS, COMMUNITY GARDENS AND ISLAND MARINA.



CANDLESTICK POINT
STATE RECREATION AREA
ALTERNATIVE 2

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF PARKS AND RECREATION

APPROVED _____ DATE _____

REVISIONS

DATE

DESIGNED

DRAWN

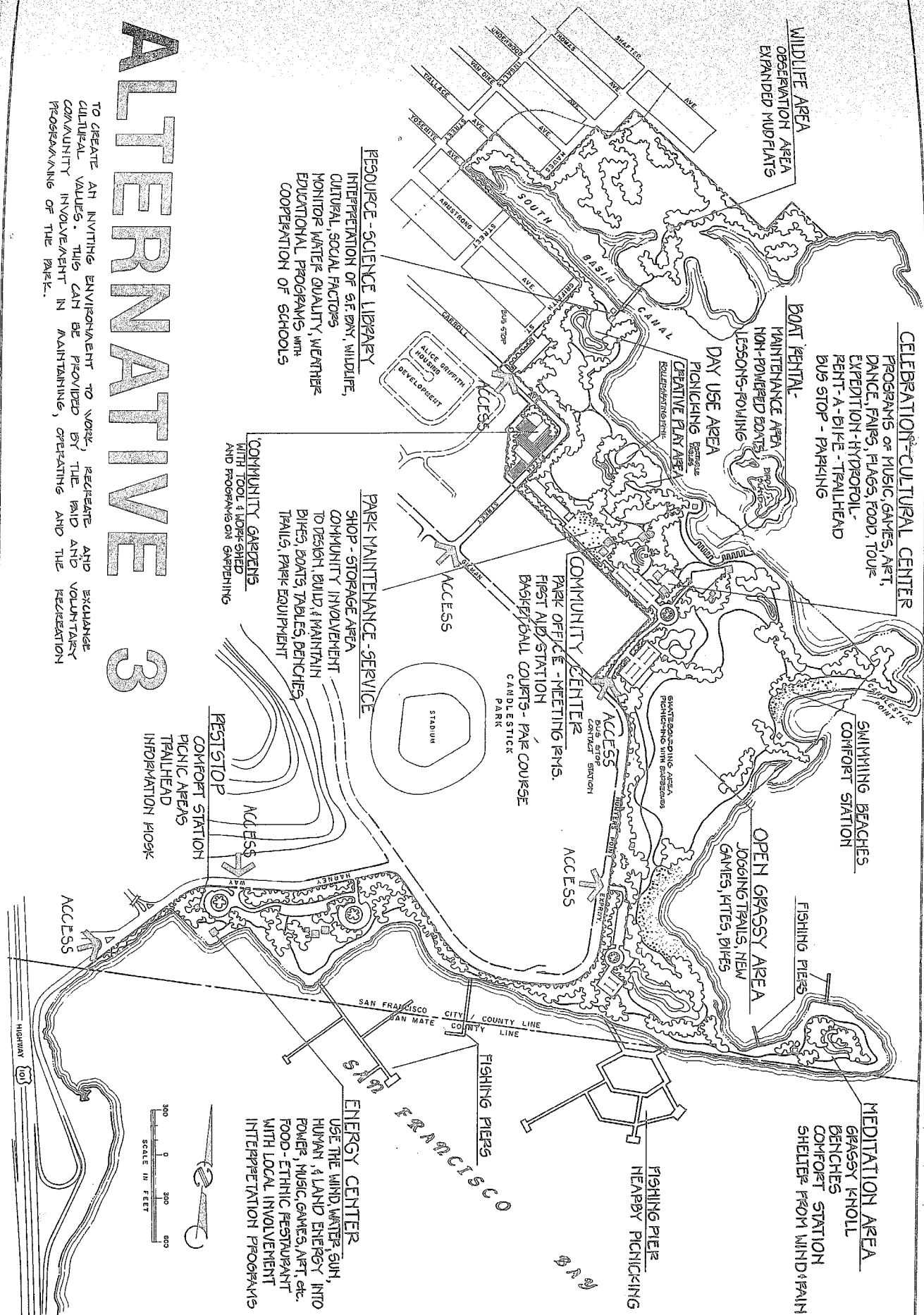
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OF
4

ALTERNATIVE 3

TO CREATE AN INVITING ENVIRONMENT TO WORK, RECREATE AND EXCHANGE CULTURAL VALUES. THIS CAN BE PROVIDED BY THE PAID AND VOLUNTARY COMMUNITY INVOLVEMENT IN MAINTAINING, OPERATING AND THE RECREATION PROGRAMMING OF THE PARK.



CANDLESTICK POINT
STATE RECREATION AREA
ALTERNATIVE 3

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF PARKS AND RECREATION

APPROVED DATE

REVISIONS

DATE

DESIGNED

DRAWN

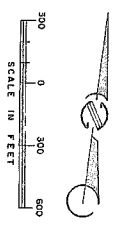
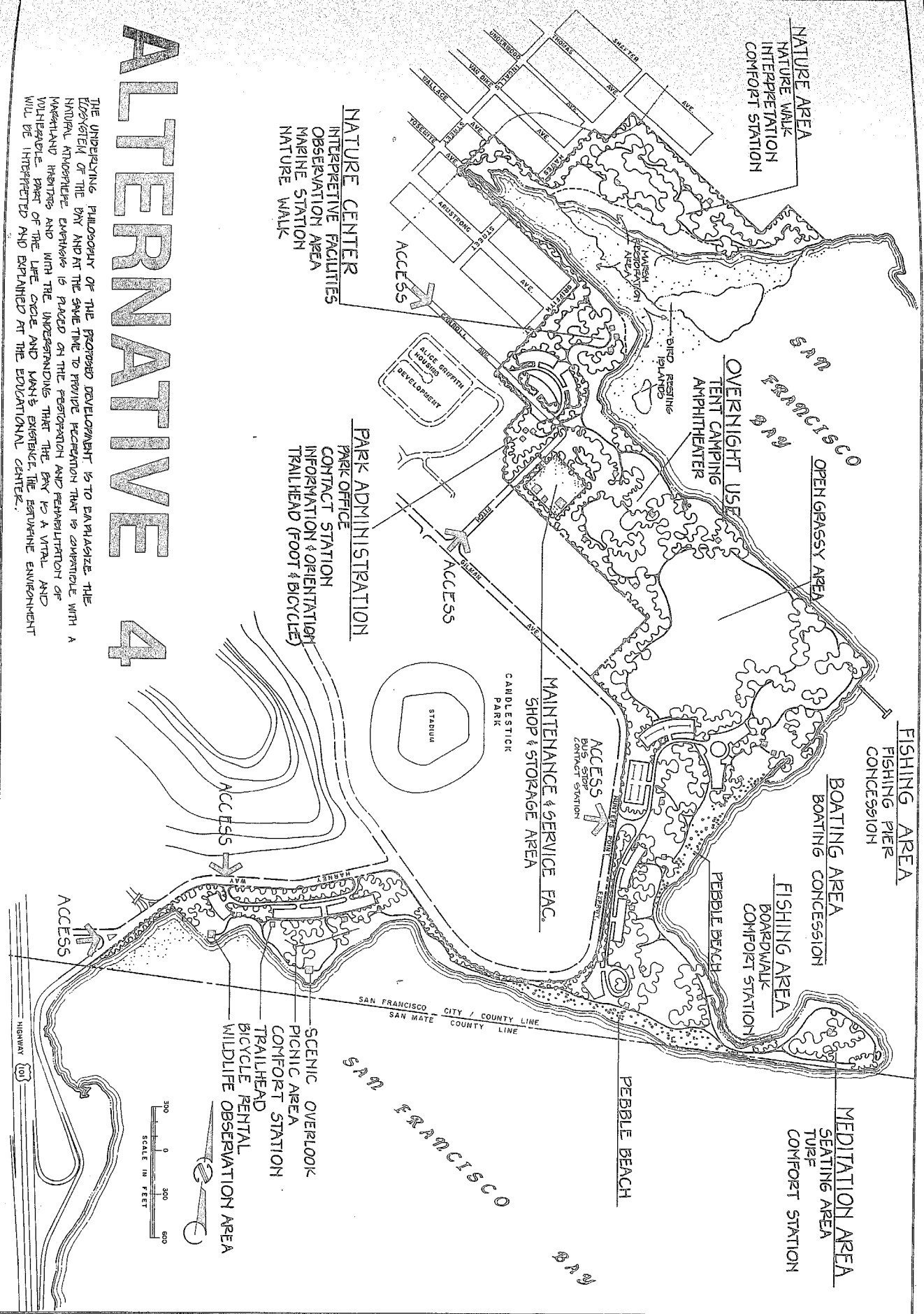
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3 OF 4

ALTERNATIVE 4

THE UNDERLYING PHILOSOPHY OF THE PROPOSED DEVELOPMENT IS TO EMPHASIZE THE ESSENCE OF THE BAY AND AT THE SAME TIME TO PROVIDE RECREATION THAT IS COMPATIBLE WITH A NATURAL ATMOSPHERE. EMPHASIS IS PLACED ON THE RESTORATION AND REHABILITATION OF WETLAND HABITATS AND WITH THE UNDERSTANDING THAT THE BAY IS A VITAL AND VULNERABLE PART OF THE LIFE CYCLE AND MAN'S EXISTENCE, THE ENVIRONMENT WILL BE INTERPRETED AND EXPLORED AT THE EDUCATIONAL CENTER.



DRAWING NO. 16263	RESOURCES AGENCY OF CALIFORNIA DEPARTMENT OF PARKS AND RECREATION		REVISIONS	DATE	DESIGNED
	APPROVED _____ DATE _____				DRAWN
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SHEET NO.
4
OF
4

Chronology of Public Meetings

August 3, 1977	Department of Transportation (CALTRANS) - San Francisco
August 15	Citizens Advisory Committee (CAC) - San Francisco
August 16	Percy Pinkney - Community Relations Assistant to Governor Brown
August 17	Steve Kahn - Sacramento
September 13	Pre-planning Meeting - Sacramento
September 14	CALTRANS Meeting - San Francisco
September 15	Kathy Mathewson - San Francisco Trust for Public Lands - San Francisco
September 19	Citizens Advisory Committee (CAC) - San Francisco
September 20	University of California, Santa Cruz - Resource Information Gathering
September 21	CALTRANS Meeting - San Francisco
September 29	Mickey Fearn and Chuck Lyden (Operations)
October 3	Triple A, U. S. Navy - San Francisco Bay Conservation Development Commission (BCDC) San Francisco Citizens Advisory Committee Meeting - San Francisco
October 4	Boat ride around site Meeting with San Francisco City Planning Department Meeting with San Francisco City Recreation and Parks Department Meeting with San Francisco City Mayor's Office
October 5	CALTRANS - San Francisco San Mateo County Planning Department "The Farm" - Bonnie Sherk - San Francisco
October 6	Tom Duncan - Sacramento
October 11	McKinnon Avenue Residents Association - San Francisco
October 12	The Farm - San Francisco Kite World, Inc. - San Francisco

October 13	Citizens Advisory Committee (CAC) - San Francisco
October 19	Able Parking Concession - Nicholas Leonadakis San Francisco City Planning Department Neighborhood Arts Council - San Francisco Assemblyman Willie Brown's Office - Debbie Fagan Golden Gate National Recreation Area (GGNRA) Assemblyman Art Agnos - San Francisco
October 20	Earth Lab One - Berkeley Citizens Advisory Committee - San Francisco
October 21	Oceanic Society - San Francisco Golden Gate National Recreation Area - San Francisco
October 26	Neighborhood Foundation - San Francisco City of Oakland
November 9	City of Brisbane - Planning and Parks and Recreation Departments Potrero Hill Boosters and Merchants Association San Francisco
November 17	PROBE - Redwood City Citizens Advisory Committee (CAC) - San Francisco
November 29	Bayview/Hunter's Point Coordinating Council San Francisco Citizens Advisory Committee (CAC) - San Francisco
December 1	Walk the site with interpretive specialist
December 7	San Francisco Chamber of Commerce
December 13	San Francisco Housing Authority
December 14	Little Hollywood Residents and Homeowners Association City of South San Francisco - Planning Department Potrero Hill Residents and Homeowners Association
December 19	Kathy Mathewson informs us of North Point Pier Project - San Francisco
December 21	Bayview Housing Association
December 22	Citizens Advisory Committee (CAC) - San Francisco
December 28	Indoor Sports Club - San Francisco
January 9, 1978	Public workshops - Daly City

January 10	Public workshops - Downtown San Francisco
January 11	Public workshops - Bayview
January 12	Public workshops - Potrero Hill
January 19	San Francisco Housing Authority - San Francisco
January 26	All People's Coalition - San Francisco
January 27	Boy Scouts of America - San Francisco San Francisco Music Center - San Francisco
January 29	Indoor Sports Club - Concord
January 31	Department of Fish and Game - San Francisco
February 8	CALTRANS - San Francisco
February 27	San Francisco Municipal Railway - San Francisco Bay Conservation and Development Commission - San Francisco Save the Bay - San Francisco
February 28	Citizens Advisory Committee (CAC) - San Francisco
March 2	(PMI) Precious Moments Inc. - Berkeley San Francisco City Recreation and Parks - San Francisco
March 6	Public workshop - San Mateo
March 7	Department of Fish and Game - San Francisco Public workshop - Visitation Valley
March 8	Precious Moments Inc. (PMI) - Berkeley Public workshop - Potrero Hill
March 13	Pelton Middle High School - Student Council - San Francisco Department of Fish and Game - San Francisco San Mateo City College Student Radio Station - San Mateo Public workshop - Bayview
March 14	San Mateo Transit District (SAMTRANS) Public workshop - San Francisco City College
March 15	Meeting with San Francisco City Planning Department Meeting with San Francisco Recreation and Park Department Meeting with San Francisco Mayor's Office Meeting with San Francisco Public Works Department Public workshop - Daly City

March 16	Public workshop - Oakland
March 22	San Francisco Planning and Urban Renewal (SPUR) - San Francisco Associated Bay Area Governments (ABAG) - Oakland San Francisco Chamber of Commerce Golden Gate Transit Authority - San Francisco
March 30	San Francisco Chamber of Commerce - San Francisco
April 3	San Francisco City Public Works Department - San Francisco
April 5	Department of Transportation (CALTRANS) - San Francisco Wildlife Sierra Club - Berkeley
April 11	McAteer High School with students - Oakland Bay Conservation Development Commission - San Francisco Public workshop - downtown San Francisco
April 12	Public workshop - Bayview
April 13	Department of Transportation (CALTRANS) - San Francisco On-site meetings concerning lease - San Francisco
April 18	Bay Attitudes - San Francisco
April 19	Public workshop - Potrero Hill

APPENDIX B

Parking and Traffic Circulation Study

DATA SUMMARY

I) Candlestick Stadium seating capacities:

58,000 (Baseball)

61,000 (Football)

II) 1978 Baseball season - 74 total home games, regular schedule

80 games for baseball (est.)

10 games for football (est.)

home games total (est.)

90+

$\frac{90}{365} = 25\%$ of days in the year (est.)

III) Parking space needs - (San Francisco city traffic engineer estimates)

(use as maximum) Football - 14,070 Vehicles * (for 61,200)
Baseball - 9,130 Vehicles * (for 39,000)

* Includes private vehicles & charter buses

IV) Total parking spaces available - 15,180
(See parking & circulation study mapping DPR drwg. #16263 2 of 2, Appendix D)

V) Surplus parking spaces (based on maximum - football)
(IV - III = V)
 $15,180 - 14,070 = 1,110$ surplus parking spaces

VI) Total existing parking spaces on SRA proposed property = 3,130
(DPR drwg. #16263, Appendix D)

VII) Net loss of parking spaces on SRA proposed property
(VI - V = VII)
 $3,130 - 1,110 = 2,020$ Net loss of parking spaces on SRA proposed property.

VIII) Parking needs for proposed DGP
Assume: A) Density use = 25 persons/acre
 B) SRA property = 120 acres
 C) Vehicle occupancy = 3 persons/vehicle

of parking spaces required = $\frac{A \times B}{C}$

of required parking spaces = $25 \frac{\text{persons}}{\text{acres}} \times 120 \text{ acres} = 1,000 \text{ vehicles}$
 $\frac{3 \text{ persons/vehicle}}{}$

IX) Total parking spaces eliminated by GDP
(VII - VIII = IX)
 $2,020 - 1,000 = 1,020$ parking spaces

X) # of persons affected
 $1,020 \text{ parking stalls} \times \frac{3.1 \text{ persons}}{\text{stall}} = 3,162 \text{ persons}$

XI) Maximum size of crowd affected
(Assumes all DPR spaces available to stadium)
 $61,200 \text{ persons} - 3,162 \text{ persons} = 58,038 \text{ persons}$

XII) Minimum size of crowd affected
(Assumes no DPR spaces available to stadium)
 $58,038 \text{ persons} - 3.1 \times 1,000$
 $58,038 - 3,100 = 54,938 \text{ persons}$

XIII) Summary of study

Impact of proposed GDP will affect stadium parking only for games with attendance that exceeds the 55,000 - 58,000-person range. Range dependent on availability of DPR parking to stadium users.

APPENDIX C

Public Assistance Resources

The Candlestick Point State Recreation Area general planning project has developed a complex network of public contacts. To benefit the future planners and designers, the following list was compiled of organizations whose interest, knowledge, and service may be of further assistance in implementation of the proposed general development plan.

Marine Resource Assistance

State of California

Department of Fish and Game

Elden Vestal - Fisheries Management Supervisor

Gil Thomson - Associate Wildlife Manager Biologist

Ted Woorster - Environmental Services Supervisor

P. O. Box 47

Region 3 - Yountville 94599

(707) 944-2443

Phil Swartzell - Associate Marine Biologist

Keith Anderson - Fishery Biologist

Walt Dahlstrom - Field Biologist

411 Burgess Drive

Menlo Park 94027

(415) 326-0324

Al Rutsch - Wildlife Conservation Board

1416 Ninth Street

Sacramento 95811

(916) 445-8449

Walton Smith - Wildlife Biologist

1051 Valecia Road

Aptos 95003

(408) 688-2244

Department of Navigation and Ocean Development

Ivar Plescov

Gregg Wapinsky

1416 Ninth Street

Sacramento 95811

(916) 322-1812

The Oceanic Society

San Francisco Bay Chapter

Kent Williams - Administrative Director

Building 240 Fort Mason

San Francisco 94123

(415) 441-5970

Marine Ecological Institute
Merritt Tuel - Vice President of Operations
811 Harbor Boulevard
Redwood City 94063
(415) 364-2760

Save San Francisco Bay Association
Steven Hill
Kay Kerr
2140 Shattuck Avenue
Berkeley
(415) 849-3053

Local and State Government/Agency Assistance

City of San Francisco
Office of the Mayor
Mary Burns - Special Assistant to the Mayor
City Hall
San Francisco
(415) 558-3994

Recreation and Parks Department
Jack Spring - General Manager
Tom Malloy - Executive Assistant
Jim Rogers - Assistant Supervisor to Parks
McLaren Lodge
Fell and Stanyan Streets
(415) 558-3706

Planning Department
George William - Assistant Director of Plans and Programs
Doug Holman - Planner
Ed Green - Planner
100 Larkin Street
(415) 558-3050

Public Works Department
Scott Shoaff - Associate Traffic Engineer
Harvey Quan - Assistant Traffic Engineer
460 McAllister
San Francisco
(415) 558-3371
Douglas Martin - Division Engineer of Recreation and Parks
45 Hyde Street, Room 308
(415) 558-4757

Real Estate Department
Wallace Wortmen - Director of Property
450 McAllister, Room 600
(415) 558-3220

Housing Authority of the City and County of San Francisco
Pat Andrews - Principal Social Planner
1815 Egbert Avenue
San Francisco 94124
(415) 467-5383

Board of Supervisors, City and County of San Francisco
Robert E. Gonzales - Supervisor
Rosalind McCracken - Administrative Assistant
City Hall
(415) 558-2867

Police Department
Southeast Station
Captain McFarland
2300 3rd Street
San Francisco
(415) 553-9111

San Francisco Bay Conservation Development Commission (BCDC)
Kent Watson - Landscape Architect - (Planning)
Alan Pendleton - (Permits & Applications)
30 Van Ness
San Francisco 94102
(415) 557-3686

San Francisco Planning and Urban Renewal Association (SPUR)
Michael Painter - Landscape Architect
Jeffrey Heller - Architect
126 Post Street
San Francisco 94108
(415) 781-8726

Association of Bay Area Governments
Dean Macris - Director
Claremont Hotel
Berkeley
(415) 841-9730

State of California
Department of Transportation
Paul Hensley - Route 230 Project Engineer
District 4
150 Oak Street
San Francisco 94102
(415) 557-1494

City of Brisbane

Jane Kirby - Recreation Director
Robert Ironside - Planning Director
Bruce Balshone - Assistant Planner
Richard Kerwin - City Manager
44 Visitacion Avenue
Brisbane 94005
(415) 467-1515

City of South San Francisco

Bill Costanzo - Planner
City Hall
400 Grand Avenue
South San Francisco
(415) 467-1515

City of Daly City

Department of Community Development
Thomas Miller - Acting Planner
Sullivan Avenue and 90th Street
Daly City 94105
(415) 992-4500, Ext. 277

City of Oakland

Office of the Mayor
V. Toni Adams - Assistant to the Mayor
(415) 273-3141

Office of Parks and Recreation

Hans Thompson - Assistant Director
1520 Lakeside Drive
Oakland 94612
(415) 273-3091

County of San Mateo

Mark Duino - Planner
Harry Dean - Landscape Architect

State Legislators

Assemblyman Art Agnos
Ritchie Ross - Administrative Assistant
350 McAllister, Room 1068
San Francisco
(415) 557-2253

Assemblyman Willie Brown

Debbie Fagan - Administrative Assistant
540 Van Ness Avenue
San Francisco
(415) 557-0784

Public Transportation Assistance

San Francisco Municipal Railway (MUNI)
Tom Matoff - Transit Planner
949 Presidio Avenue, Room 204
San Francisco 94115
(415) 558-5284

San Mateo County Transit District (SAMTRANS)
A. R. Cianfichi - Director of Planning and Research
400 South El Camino Real, Room 400
San Mateo 94402
(415) 573-2349

Golden Gate Bridge, Highway and Transportation District
Stephan Leonoudakis, Director
Box 900, Presidio Station
San Francisco 94129
(415) 921-5858

Future Program Assistance

Bay Attitudes
Joseph Peretti
Nan Park
20 Inca Lane #6
San Francisco 94115
(415) 567-7975

PMI (Precious Moments, Inc.)
Lucien Scott Stone
P.O. Box 2440
Berkeley 94702
(415) 843-1093

The Neighborhood Foundation
Kim Kaiser
265 Laguna
San Francisco
(415) 863-1341

Boy Scouts of America
Darrell Jackson - Candlestick District Executive
12 Geary Street, Suite 507
San Francisco 94108
(415) 392-6990

American Adventure Play Association
Ross Yeager - Acting Director
1322 Masonic No. 3
San Francisco 94117
(415) 552-9589

Golden Gate National Recreation Area
Fort Mason Center
Judy Ellstrom
Laguna and Marina Boulevard
San Francisco
(415) 441-5705

Community Garden Programs
Charles Moser
P.O. Box 451
Woodacre 94941
(415) 488-4435
(415) 488-4340

People's Environmental Group
Robin Moore
300 Broadway No. 23
San Francisco, 94133
(415) 848-6874

Potrero Hill Neighborhood House
Ruth Passen
953 De Haro Street
San Francisco 94107
(415) 826-8080

Bayshore Residents Association
Joseph Ken Jr., President
240 Accacia Street
Daly City 94014

All People's Coalition
Don Horenzy, President
168 Leland Avenue
San Francisco
(415) 239-9050

Citizens Advisory Committee

Claude Everhart, President
2601 20th Street
San Francisco
(415) 648-1922

Ms. Evelyn Darnes
Ms. Lennie Gaines
Mrs. Ethel Garlington
Mr. Donald Horenzy
Mr. Doug Holmen
Ms. Lidia Lagarda
Ms. Shirley Jones
Mr. Harold Madison

Mr. Barton Mathew
Ms. Ethel McCarrell
Mr. Earl Mills
Mr. Daniel Sullivan
Ms. Cleo Wallace
Mr. Michael Nolan

Federal Assistance

United States Navy
Hunter's Point Shipyard
Art Jones
Triple A Shipyard - present tenant
Albert Engel
P.O. Box 24460
San Francisco 94124
(415) 822-8222

Candlestick Stadium Contacts

San Francisco Giants
Donald Foreman - Director of Stadium Operations
(415) 467-8000
San Francisco 49'ers
Lou Spadia -
(415) 365-3420
Parking Concession - ABLE Parking
Nicholas Leonadakis
(415) 495-3909

Adjacent Private Development

The Yerby Corporation
George Yerby - President
500 Harney Way
P.O. Box 34160
San Francisco 94134
(415) 467-2930

APPENDIX D
COMMENTS AND RESPONSES TO COMMENTS
From Public Agencies reviewing the
Preliminary Candlestick Point SRA
Resource Element, General Plan, and
Environmental Impact Report



Part I
COMMENTS RECEIVED FROM PUBLIC AGENCIES

Copies of letters and memoranda are included here and specific responses to each are found on page 85. The numbered paragraphs refer to the specific response.



EDMUND G. BROWN JR.
GOVERNOR

State of California
GOVERNOR'S OFFICE
OFFICE OF PLANNING AND RESEARCH
1400 TENTH STREET
SACRAMENTO 95814
(916) 445-0613

September 4, 1978

James M. Doyle
Parks & Recreation
Post Office Box 2390
Sacramento, CA 95811

SUBJECT: SCH# 78072432 - CANDLESTICK POINT STATE RECREATION
AREA, RESOURCE MANAGEMENT

Dear Mr. Doyle:

This is to certify that State review of your environmental document is complete.

The results of the State review are attached. You should respond to the comments as required by the California Environmental Quality Act. You should address your responses to the commenting agency with a copy to the Clearinghouse.

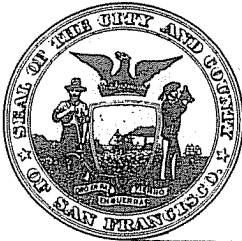
Sincerely,

A handwritten signature in cursive script that reads "Stephen V. Williamson".

Stephen V. Williamson
State Clearinghouse

SAW/na
Attachment

cc: Ken Fellows, DWR
Donald D. Dalke, CRWQCB
Ted T. Fukushima, State Lands
E. C. Fullerton, DFG
Charles R. Roberts, SFBCDC
Vernon J. Richey, CalTrans



CITY AND COUNTY OF SAN FRANCISCO
DEPARTMENT OF PUBLIC WORKS
BUREAU OF SANITARY ENGINEERING

770 GOLDEN GATE AVE. 3RD FL. SAN FRANCISCO, CAL. 94102 (415) 558-2131

September 15, 1978

Bayside Facilities Plan

2.6.0

State of California
Department of Parks & Recreation
P.O.Box 2390
Sacramento, CA 95811

Attention: Mr. James M. Doyle, Supervisor
Environmental Review Section

Subject: Candlestick Point Recreation Area
General

Dear Mr. Doyle:

The Wastewater Management Program did not obtain a copy of the subject EIR for the Candlestick Point State Recreational Area (CPRSA) until after the 45 day comment period requested in your transmittal letter of July 14, 1978 hence the lateness of our response. Our comments on subject areas of mutual concern follow:

Wet-Weather Overflow Control Facilities. The City has started detailed planning for the wet-weather overflow control facilities for the Yosemite Canal (South Basin Canal) area. Large underground sewer transport and storage facilities will have to be constructed around Yosemite Canal in order to limit wet-weather overflows into the Canal. A portion of these facilities may have to be located within the proposed boundary of the CPRSA. With careful planning and inter-agencies cooperation our overflow control facilities can be made compatible with the proposed recreational area.

Shellfish. As part of the environmental studies for our wet-weather overflow control facilities we have undertaken a comprehensive study of shellfish populations along the bay shoreline

from Islais Creek to Sierra Point (in San Mateo County) and have instituted a program to monitor the bacteriological quality of the two most prevalent edible species of clams (Mya arenaria and Tapes Japonica) found in this area. The field work for the population studies is complete and a report is scheduled for publication in October of this year. The bacteriological monitoring was recently begun and is tentatively scheduled to run through spring of 1979 at which time a report will be prepared.

Preliminary Results from these studies that may be of interest to you are as follows:

- Juvenile (less than 2 cm length) Mya are ubiquitous in the mud flats. Population densities over 3000 per square meter were recorded. However adult Mya are generally found only in rocky upper inter-tidal areas.
- Good populations of legal sized tapes were found in the rocky substrates on both sides of the narrow isthmus leading out to the southeasterly point, Fair numbers of Tapes were found in Yosemite Canal and in all suitable substrate areas along the south side of the proposed CPSRA.
- Fecal coliform levels in four of the six samples of clams collected in the area for the proposed CPSRA exceed the FDA limit of 230 MPN/100 gms. A composite sample of Tapes and mya collected in the Yosemite Canal just east of Griffith Street had a fecal coliform level more than 100 times the FDA standard. These samples were collected between 7/19/78 and 8/23/78, a period of no rainfall, therefore wet weather overflows could not be the cause for the high coliform readings.
- Contrary to the considerable amount of shell debris of the bent-nosed clam (Macoma nasuta) found all along the shoreline, living members of this species are virtually non-existent.
- Tapes are now being recreationally harvested both for fish bait and human consumption in the CPRSA and adjacent areas.

We would be pleased to provide you with any information we have on shellfish in this area and would appreciate receiving reports of any field studies of shellfish you may undertake.

Mr. James M. Doyle
September 15, 1978
Page Three

Water Quality Monitoring. We are interested in the water quality monitoring station to be proposed for the Nature Education Center as we have on going shoreline water quality monitoring requirements. It should be a relatively simple matter to strucutre the monitoring station to provide the needed data to meet the requirements of both agencies.]-3

Since planning for the CPSRA involves several subjects of mutual interest a meeting between our agencies may be appropriate. If you would like to arrange such a meeting or desire additional information please give me a call at (415) 558-2131. If I am not available please contact Dave Jones at (415) 558-2613. If you have any additional data of shellfish I would appreciate an early response so that we can incorporate this data in our report on shellfish.]-4

Very truly yours,



H. C. Coffee
Project Manager
Bayside Facilities Planning

REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION
INTERNAL MEMO

File No. 2178.05(DDD)DR

TO: DIANE NAVARRO; DEPT. OF WATER FROM: DONALD D. DALKE, SECTION LEADER
RESOURCES, RESOURCE EVALUATION UNIT SAN MATEO COUNTY

DATE: AUGUST 4, 1978 SIGNATURE: Donald D Dalke

SUBJECT: RESOURCE MANAGEMENT PLAN, GENERAL DEVELOPMENT PLAN, AND ENVIRONMENTAL
IMPACT REPORT FOR THE CANDLESTICK POINT STATE RECREATION AREA PROJECT

The following comments are offered regarding the Environmental Impact Report for subject project:

1. The impact of discharge of untreated sewage into the South Basin Channel of San Francisco Bay during the wet weather period should be considered.]-5
2. Irrigation practices should be defined. If reclaimed wastewater is considered for irrigation, use areas should be well defined, as well as necessary degree of treatment of wastewater; and the sources of such wastewater.]-6
3. Inactive Disposal Site

The inactive waste disposal sites must comply with this Regional Board's Minimum Criteria for Proper Closure of Class II Solid Waste Disposal Sites, Resolution No. 77-7 (attached).]-7

If you have any questions with regard to this, please call Anders Lundgren at ATSS (8) 561-0682.

Attachment:
Resolution No. 77-7

cc: SWRCB
Division of Planning & Research
Environmental Analysis Unit

SAN FRANCISCO BAY CONSERVATION AND DEVELOPMENT COMMISSION

30 VAN NESS AVENUE
SAN FRANCISCO, CALIFORNIA 94102
PHONE: 557-3686



August 23, 1978

Office of Planning and Research
State Clearinghouse
1400 10th Street
Sacramento, California 95814

SUBJECT: SCH #78072432 and BCDC Inquiry File No. SF.SB.6613.13

Gentlemen:

Thank you for the opportunity to review the Candlestick Point State Recreation Area Resource Management Plan and Environmental Impact Report. Although the Commission has not had an opportunity to review the report, the staff has reviewed the document in light of the McAteer-Petris Act and the San Francisco Bay Plan, and would like to offer a few comments at this time.

Jurisdiction

The Commission has jurisdiction over San Francisco Bay and all areas within 100 feet of the line of highest tidal action. It appears that a permit will be required since the project will entail some fill in the Bay for fishing facilities and dock construction as well as the dredging proposed for marina construction. In addition, there will be construction of recreational facilities within the 100-foot shoreline band.

Park Use

The proposed park is consistent with the San Francisco Bay Plan and the McAteer-Petris Act. Bay Plan Map No. 10 shows the eastern and southern shoreline at Candlestick Point as a park priority use area. The park plan indicates that some fill would be placed. So long as the fill is the minimum amount necessary, and would be for the purposes of improving shoreline appearance and providing new public access to the Bay, the fill could be found by the Commission to be consistent with the fill policies of the Act and Plan. We did note that a comfort station might be located on fill or near the shoreline. We suggest this facility be moved inland to conform better with the Commission's policies on shoreline use.

Since one of the major purposes of the park would be to provide increased shoreline access, we believe the facilities proposed in the various alternatives discussed in the document would be appropriate for shoreline locations. We are somewhat concerned about the proposed restaurant if it is to be located partially or entirely on fill. While some fill for commercial uses can be approved when there is no upland alternative, it appears that there is substantial upland area at the park. There is an alternative ground for approving small amounts of fill for restaurants when the fill is necessary as a design asset of the structure. This can be the case when diners would be brought closer to the Bay. Due to the constraints concerning fill for restaurants, we suggest that careful attention be given to the design and size of the proposed restaurant.

We are particularly pleased with the attention given to handicapped persons. It appears that substantial areas of shoreline will be made accessible.

Proposed Marina

The staff is concerned about the proposed marina shown in some of the park alternatives. Before the Commission could approve a marina at this location, it would need evidence that the following Bay Plan policy would be satisfied.

4.b. Marinas and launching lanes. (1) Sites that tend to fill up unusually rapidly with silt or mud, or that are subject to unusual amounts of dense fog, should be avoided, (2) launching lanes should be placed where wind and water conditions would be most favorable for smaller boats, (3) some launching lanes should be located near prime fishing areas and others near calm, clear water suitable for waterskiing. Fill permitted for marina development should be the minimum necessary to provide support facilities (parking, service buildings, launching lanes, etc.). At a density of 44 berths per acre of water surface, about 3/4 acre of land is generally sufficient for each acre of water surface (750 square feet per berth). Marinas having fewer than 44 boats per acre require less land per berth. No fill for marinas should be permitted to exceed 3/4:1 land/water ratio.

Island

We note that the plan includes provisions to dredge a channel to create an island for bird use. Islands created by dredging, rather than by filling, are consistent with the Bay Plan policies on islands.

Office of Planning and Research
August 23, 1978
Page Three

Expressway

In all alternatives the expressway appears to have been relocated so that it is farther from the shoreline than in some of the original proposals. The location appears to allow for more public access to the Bay.] 12

Dredging

The amount of dredging that would be required should be determined and the environmental report should discuss dredging in more detail, including the frequency of maintenance dredging and the location of dredged spoils disposal.] 13

The EIR on the General Development Plan seems to cover impacts which can be determined at the master plan stage. We may have further comments on the project when a single detailed plan is developed and circulated for comment.] 14

Very truly yours,


CHARLES R. ROBERTS
Executive Director

CRR/st

cc: L. Frank Goodson, Resources Agency

Memorandum

To : L. Frank Goodson
Resources Agency

Date : August 21, 1978

File No.: SD 78-07-24

James M. Doyle
Department of Parks and Recreation
P.O. Box 2390
Sacramento, California 95814

From : EXECUTIVE OFFICE
1807 13th Street, Sacramento 95814

Subject: Comments to Candlestick Point State Recreation Area-
Resource Management and General Development Plan - Draft EIR
SCH #78072432

The staff of the State Lands Commission has reviewed the subject document and offer the following comments:

The project area, according to the report, is comprised of (1) sold and filled Board of Tideland Commissioners' (BTLC's) lots; (2) sold and unfilled BTLC lots; (3) Pueblo lands of San Francisco; (4) lands which the State disposed of under patents; (5) lands condemned by the federal government under suit U.S.D.C. #36272; and (6) lands granted in trust to the City and County of San Francisco under Chapter 1333, statutes of 1968, minerals reserved.

At the present time, there are serious questions concerning the ownership of the BTLC lots and they may be subject to permit or leasing requirements of the State Lands Commission; title to lands similar in nature is now being litigated in the case of Murphy v. City of Berkeley, Alameda County Superior Court No. 422942. Since the question of the State's interest remains unresolved, a permit or lease will not be required at this time. This action, however, does not constitute, nor shall it be construed as, a waiver of any right, title or interest by the State of California in any lands under its jurisdiction.

Also, since titles are complex in the subject area, it is recommended that all the principals confer with the State Lands Commission prior to the adoption of final development plans and the consummation of land exchanges. In so doing, it is hoped to avoid legal problems in the future particularly with respect to the land exchanges. It is anticipated that each such issue will be handled on a case-by-case basis.

L. Frank Goodson
Resources Agency

-2-

August 21, 1978

Should there be further questions, please contact
Mr. Herbert Maricle at (916) 322-7822.

A handwritten signature in cursive script, appearing to read "Ted T. Fukushima".

TED T. FUKUSHIMA
Senior Planner

TTF:sp

cc: H. Maricle




August 11, 1978

4-SF-101, 230

Comments of Caltrans, District 4, concerning the Draft Environmental Impact Report for the Candlestick Point State Recreation Area, State Clearinghouse No. 78072432.

The DEIR should describe the effect of traffic generated by the Recreation Area upon Route 101 and the proposed future Route 230, particularly during the evening peak hour and when events are held at Candlestick Park Stadium. } 16

Thank you for the opportunity to comment on this DEIR. We would appreciate receiving a copy of the Final EIR.


VERNON J. RICHEY
Deputy District Director

Memorandum

To : Mr. Huey D. Johnson
Secretary for Resources
1416 Ninth Street
Sacramento, California 95814

Date: August 4, 1978

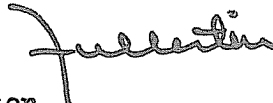
Attn: L. Frank Goodson
Projects Coordinator

From : Department of Fish and Game

Subject: Draft EIR, Candlestick Point State Recreation Area, Resource Management Plan,
General Development Plan, San Francisco County; SCH 78072432

The Department of Fish and Game has reviewed the subject report and has the following comment.

We are in agreement with the report's Preliminary Single Plan and believe the project will benefit fish and wildlife.

EC 
Director

Part II
RESPONSE TO COMMENTS

RESPONSE TO COMMENTS

on a Preliminary Candlestick Point State Recreation Area Resource Element, General Plan, and Environmental Impact Report

The comments received for the preliminary Candlestick Point State Recreation Area Resource Element, General Plan, and Environmental Impact Report were:

(1) found to be substantial, and the text was revised and/or a response was given; (2) the comments were were not substantial but required a minor change in the text and/or a brief response; or (3) the comments provided information or were supportive and did not require a response.

The responses below correspond to the number to the right of the comments, for conditions (1) or (2) above.

1. We recognize the problem involved in a wet weather overflow control facility for the Yosemite Canal (South Basin Canal area). We understand that alternatives are being studied. If a portion of the overflow control facilities were to be located on Candlestick Point State Recreation Area land, an encroachment permit will be required. A possible conflict may result with a proposed overflow control construction and the State Recreation Area's proposed nature area.
2. We would be very interested in receiving information on the shellfish in the bay in your area of study. Our Department has not undertaken a shellfish study along the bay but will send you data if we should do so. The reference to the bent nose clam in the Resource Mangement Plan will be changed in the text.

3. We would be glad to plan and construct a water monitoring equipment station to meet the needs of both our agencies.
4. We would be happy to meet and discuss areas of mutual interest between our two agencies.
5. As indicated in item number 1, the Bureau of Sanitary Engineering, Department of Public Works, the City and County of San Francisco are interested in eliminating these problems concerning health.
6. We will not use reclaimed wastewater for irrigation. Both domestic and irrigation water needs will be supplied by the San Francisco Water Department.
7. The inactive waste disposal site is not a Class II solid waste disposal site as you mentioned, but is a Class III site. As such it does not come under Resolution 77-7 with the San Francisco Bay Regional Water Quality Control Board Resolution, minimum criteria for proper closure of Class II solid waste disposal sites. However, we do recognize a leachate problem because of past illegal dumping of undesirable material at Candlestick Point State Recreation Area. We will work closely with Water Quality Control Board to meet the closure of this dump site and to remedy leachate problems when they occur.
8. The Department will work closely with San Francisco Bay Conservation and Development Commission. All proposed developments will require BCDC permit approvals. Extensive fill is not contemplated, but dredging of the bay and

minimum of filling and construction within 100 feet of the shoreline will be done as authorized by a permit.

9. The plan indicated that the shoreline changes will be minimal. These changes will benefit the mud flat marsh and habitat of flora and fauna, accessibility to the shoreline, and the general aesthetics of the shoreline. Specific locations of facilities have not been firmly established.
10. The Department's Concessions Section will work closely with BCDC in location of the restaurant.
11. Alternatives showing a large marina development are not contemplated since this can best be done by private enterprise and in better locations elsewhere in the bay.
12. The expressway as it appears in the alternatives and the proposed General Development Plan are the same and are accurately shown on the plan.
13. The amount of dredging and fill will be balanced and held to a minimum. Our dredging spoils will be used as fill on project lands as contemplated.
14. Whenever a specific phase of the overall plan is budgeted and proposed for implementation, a more detailed and specific environmental assessment will be prepared for that particular project as part of the budget package.
15. The Department is aware of these problems and agrees that litigation is required to solve complex title questions.

16. The proposed State Recreation Area will generate traffic and influence traffic on U.S. 101 and the proposed Route 230 and other neighborhood surface streets in this portion of San Francisco. We believe that the traffic will not add significantly to the traffic congestion because:

(a) the traffic will not usually be leaving or arriving at the State Recreation Area at one particular time and will not usually conflict with sporting events or with rush hour traffic; (b) most traffic to the State Recreation Area will be on weekends rather than weekdays, therefore, conflicting less with rush hour traffic; (c) as indicated on pages 59 and 60, during capacity crowd events at Candlestick Stadium, the cars visiting the stadium might actually park on State Recreation Area parking lots as they are doing so now; (d) the actual number of people visiting the State Recreation Area will be fairly insignificant to the overall traffic patterns in the area.

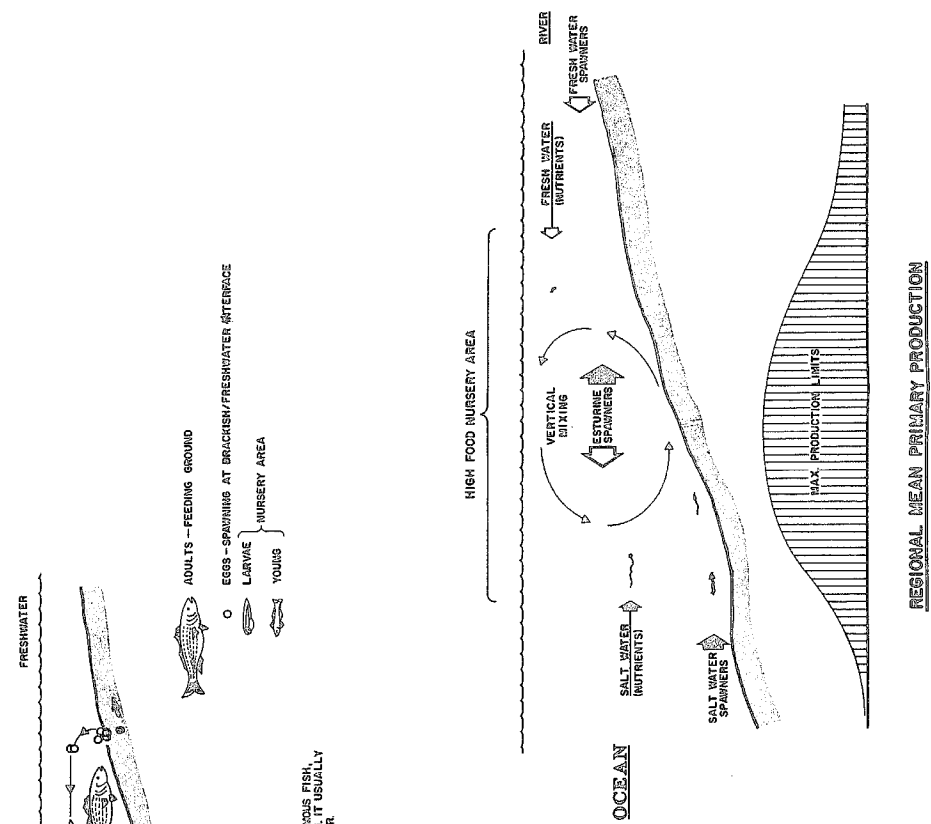
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APPENDIX E
Maps

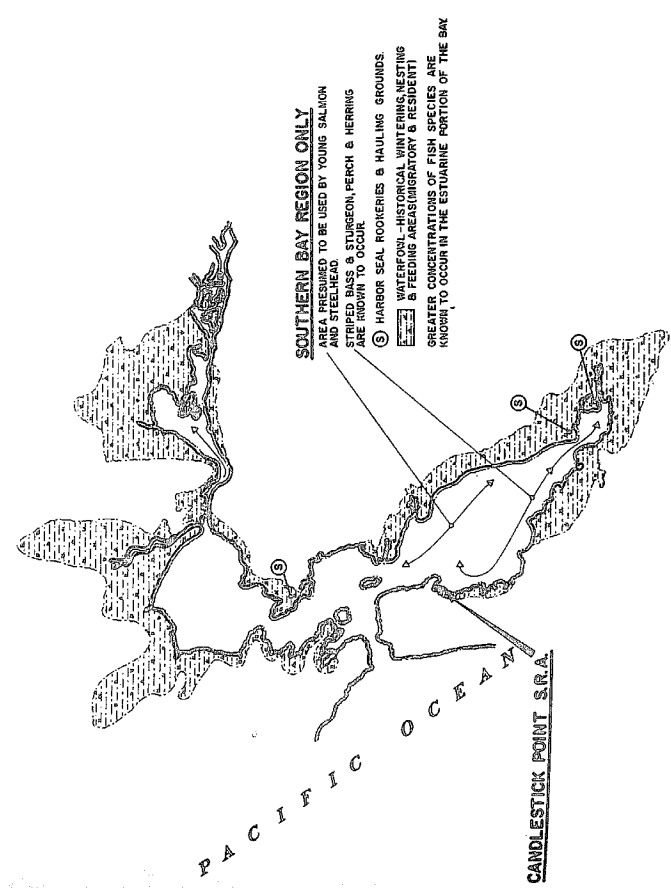
ESTUARINE HABITAT

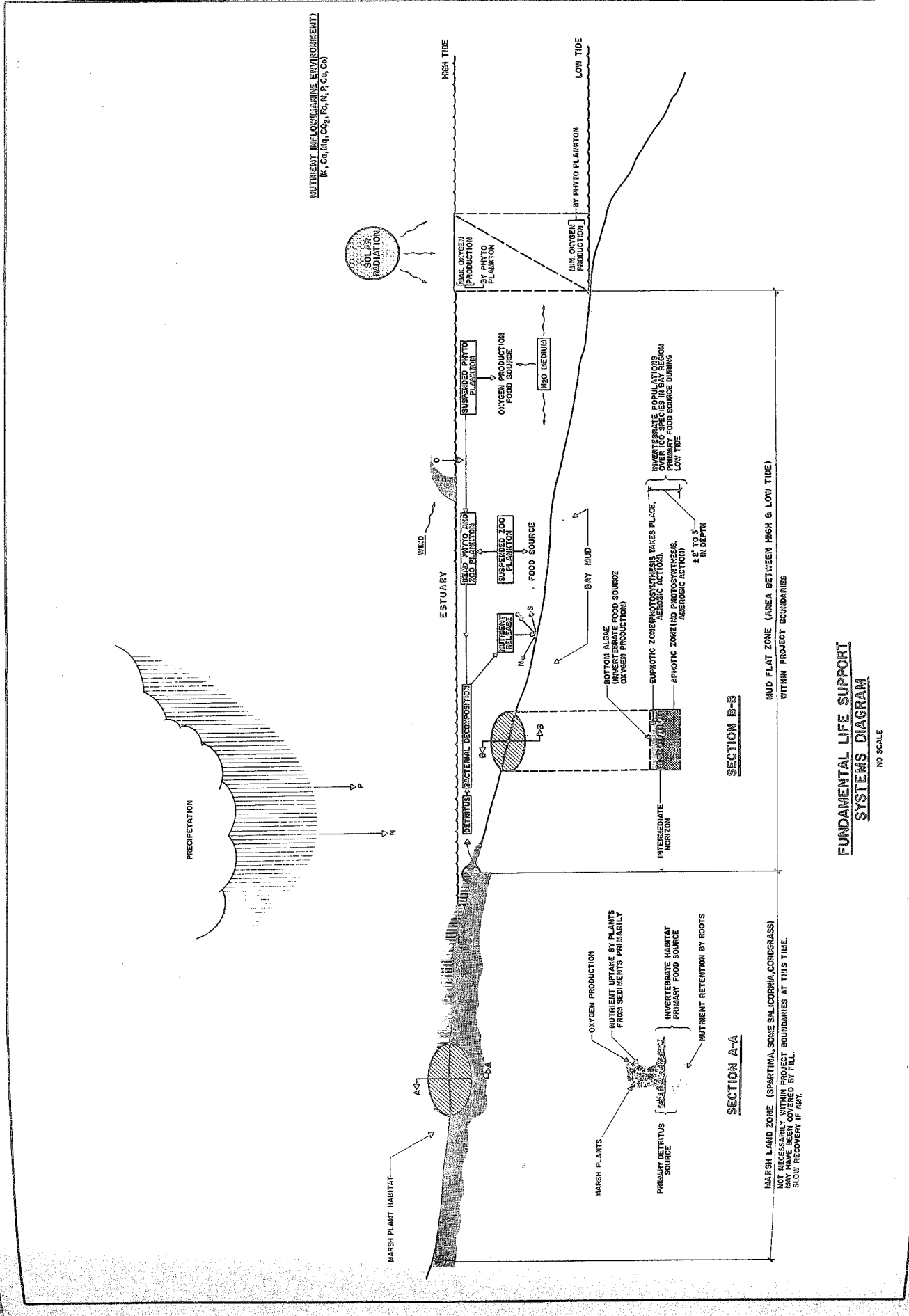
DEPARTMENT OF PARKS AND RECREATION

SEARCHED	INDEXED	<div style="border: 1px solid black; height: 100px; width: 100%;"></div>
SERIAL	FILED	
APR 1 1968		
FBI - ALBANY		



NOTE: THE STRIPED BASS, AN IMPORTANT ESTUARINE SPECIES, IS A SEMIANADROMOUS FISH, MOVING FROM SALINE WATER TO, OR ALMOST, FRESH WATER TO SPAWN. IT USUALLY SPAWNS NEAR THE INTERSURFACE OF FRESH AND LOW SALINITY WATER.





FUNDAMENTAL LIFE SUPPORT SYSTEMS DIAGRAM

NO SCALE

SAN FRANCISCO

Candlestick Point
S B A

VIEWS OF
PT. SAN BRUNO

DISTANT VIEWS OF
SAN FRANCISCO
INTERNATIONAL
AIRPORT



DISTANT VIEWS OF
SAN MATEO BRIDGE



VIEWS OF
SAN FRANCISCO BAY

SAN FRANCISCO BAY

DISTANT VIEWS OF
ALAMEDA

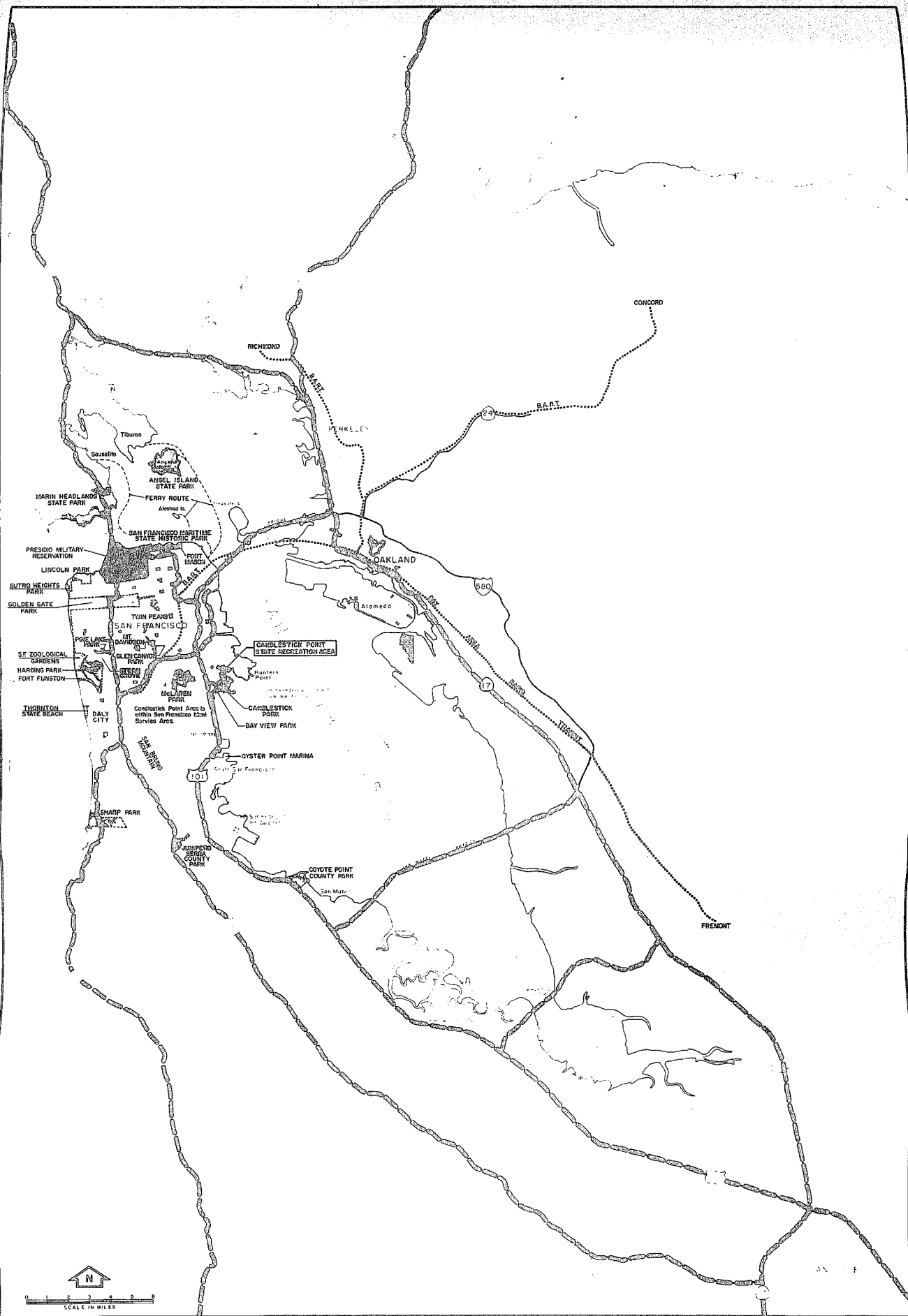
RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF PARKS AND RECREATION

CANDLESTICK POINT S.R.A.

VISUAL FEATURES

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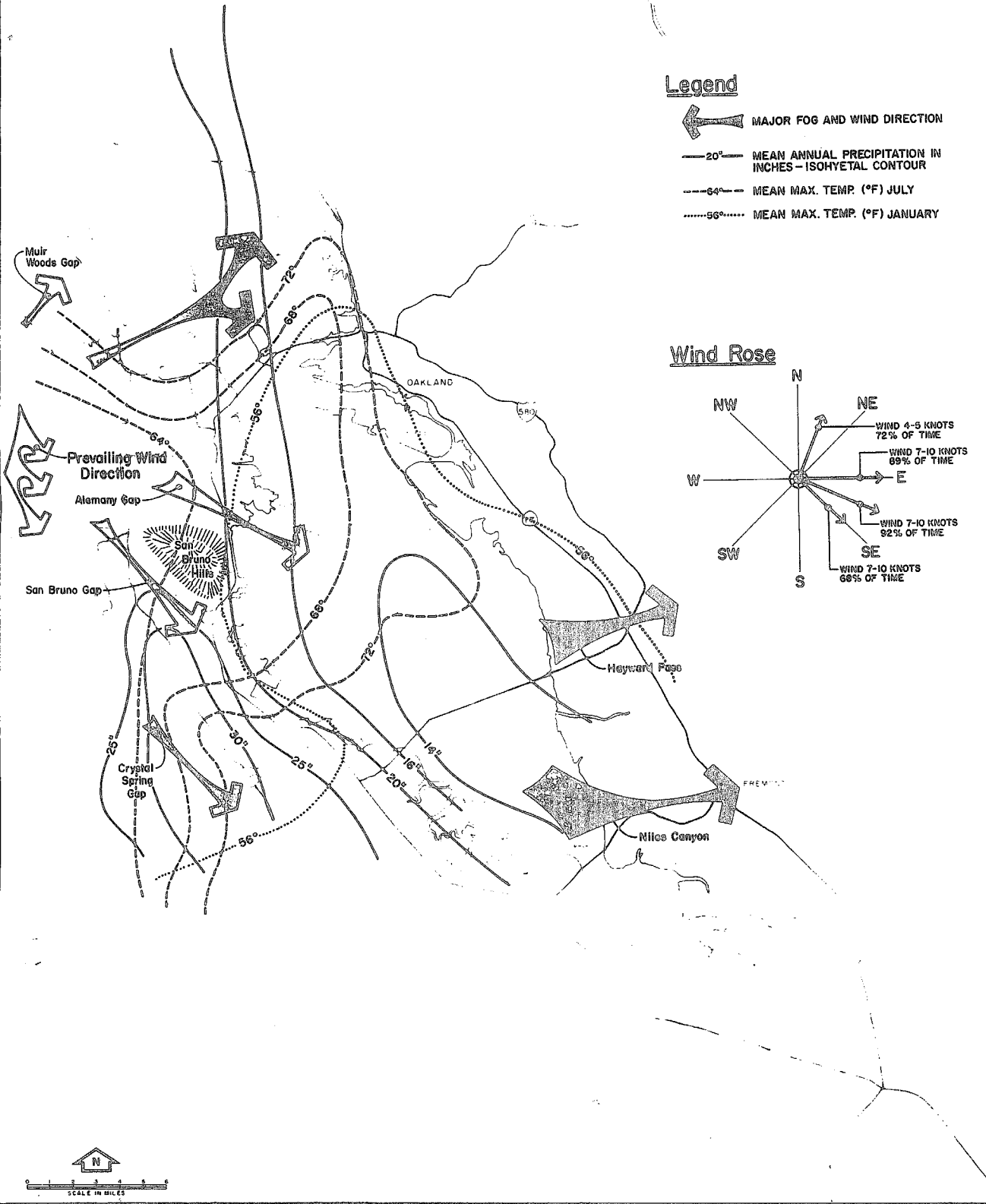
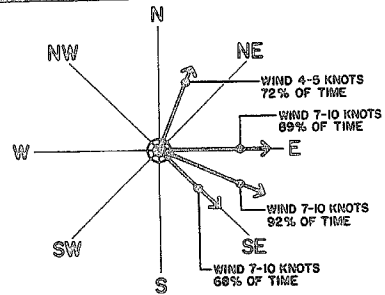


SHEET NO. 16263 20	CANDLESTICK POINT S.R.A. REGIONAL CIRCULATION & LOCAL PARK UNITS		RESOURCES AGENCY OF CALIFORNIA DEPARTMENT OF PARKS AND RECREATION	REVISIONS 	DATE 	DESIGNED S. CHANG
			APPROVED _____ DATE _____			DRAWN 1-78
						CHECKED

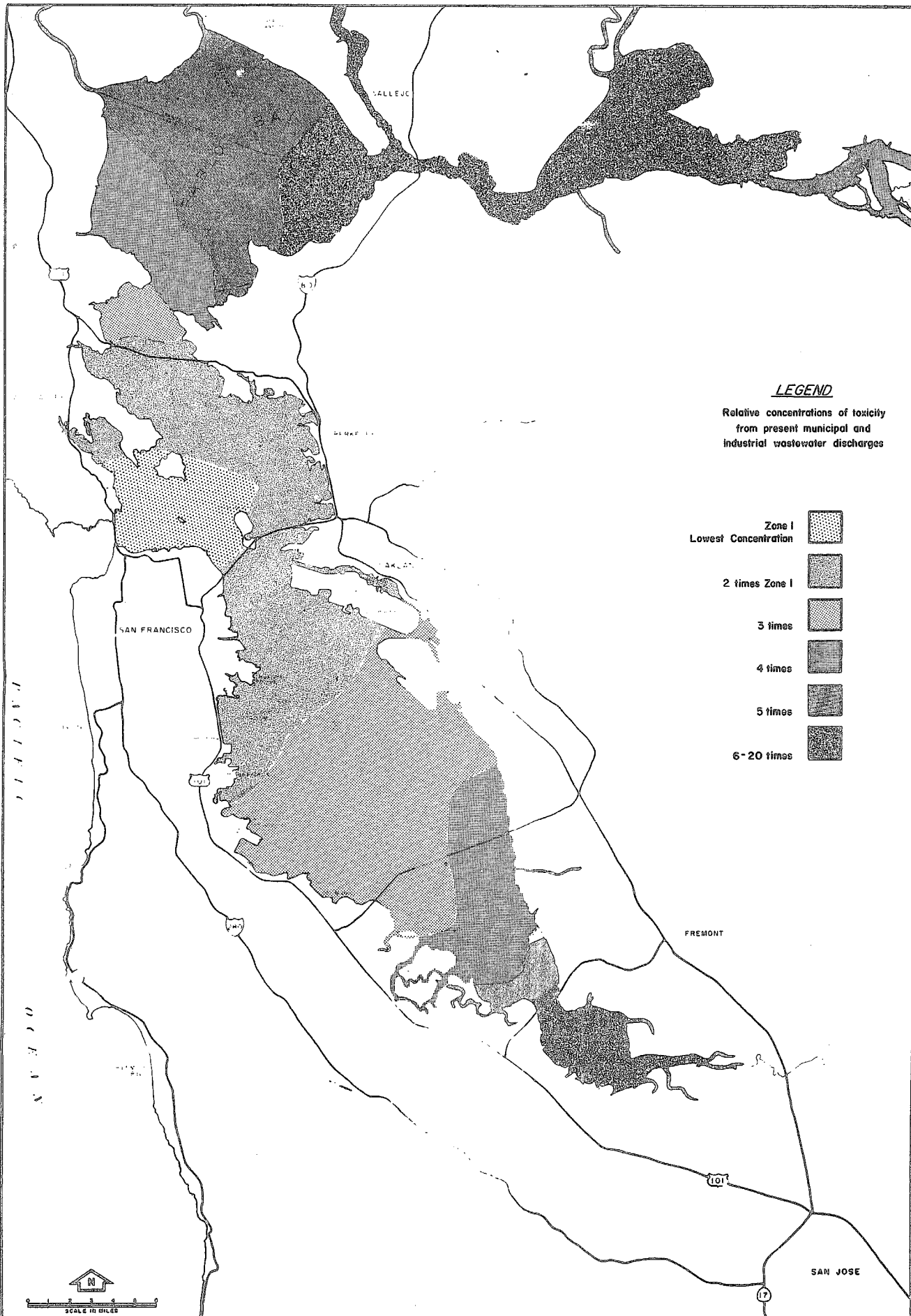
Legend

- MAJOR FOG AND WIND DIRECTION
- 20" MEAN ANNUAL PRECIPITATION IN INCHES - ISOHYETAL CONTOUR
- 64° MEAN MAX. TEMP. (°F) JULY
- 56° MEAN MAX. TEMP. (°F) JANUARY

Wind Rose



20 6 16263 SHEET NO. DRAWING NO.	CANDLESTICK POINT S.R.A. CLIMATE OVERVIEW		RESOURCES AGENCY OF CALIFORNIA DEPARTMENT OF PARKS AND RECREATION		REVISIONS	DATE	DESIGNED
			APPROVED _____ DATE _____				DRAWN FEB. 1978
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CANDLESTICK POINT S.R.A.
POLLUTION ZONES
in
SAN FRANCISCO BAY

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF PARKS AND RECREATION

APPROVED _____ DATE _____

REVISIONS

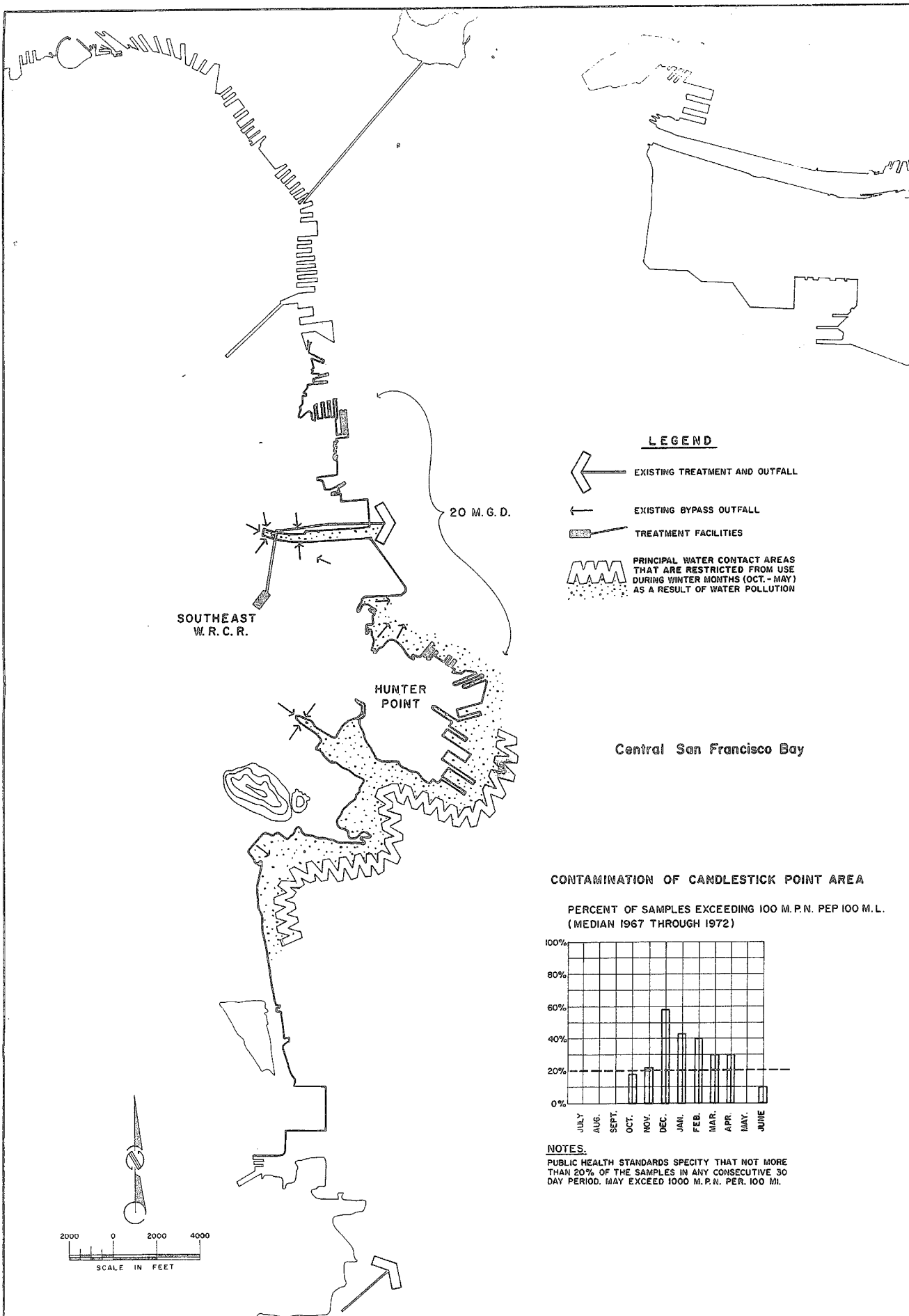
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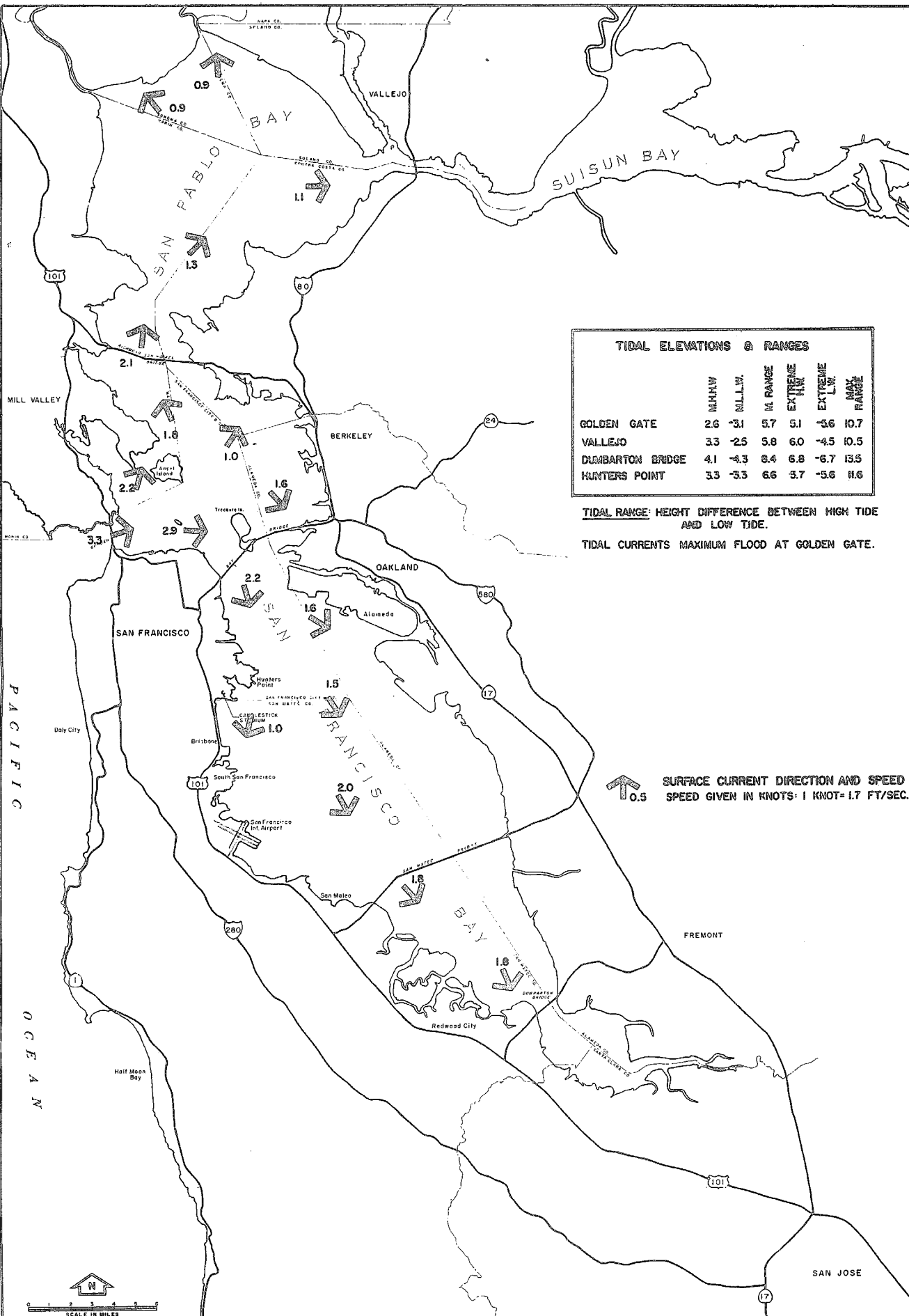
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			APPROVED _____ DATE _____			DRAWN W. Yee 3/78



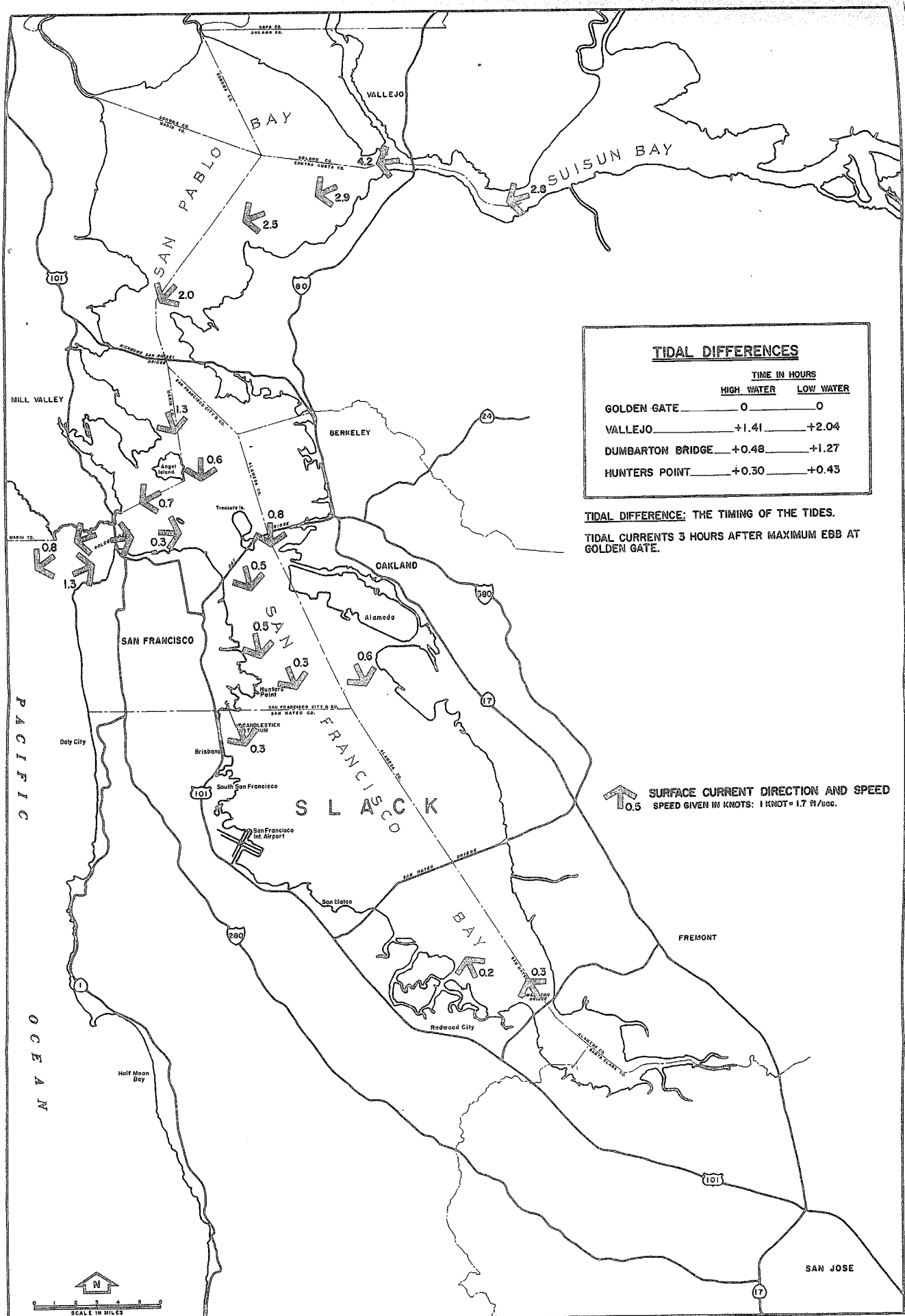
TIDAL ELEVATIONS & RANGES						
	M.H.W.	M.L.L.W.	M. RANGE	EXTREME H.W.	EXTREME L.W.	MAX. RANGE
GOLDEN GATE	2.6	-3.1	5.7	5.1	-5.6	10.7
VALLEJO	3.3	-2.5	5.8	6.0	-4.5	10.5
DUMBARTON BRIDGE	4.1	-4.3	8.4	6.8	-6.7	13.5
HUNTERS POINT	3.3	-3.3	6.6	5.7	-5.6	11.6

TIDAL RANGE: HEIGHT DIFFERENCE BETWEEN HIGH TIDE AND LOW TIDE.

TIDAL CURRENTS MAXIMUM FLOOD AT GOLDEN GATE.

↑ 0.5 SURFACE CURRENT DIRECTION AND SPEED
SPEED GIVEN IN KNOTS: 1 KNOT=1.7 FT/SEC.

SHEET NO. 16263 20	CANDLESTICK POINT S.R.A. WATER MOVEMENT		RESOURCES AGENCY OF CALIFORNIA DEPARTMENT OF PARKS AND RECREATION		REVISIONS	DATE	DESIGNED
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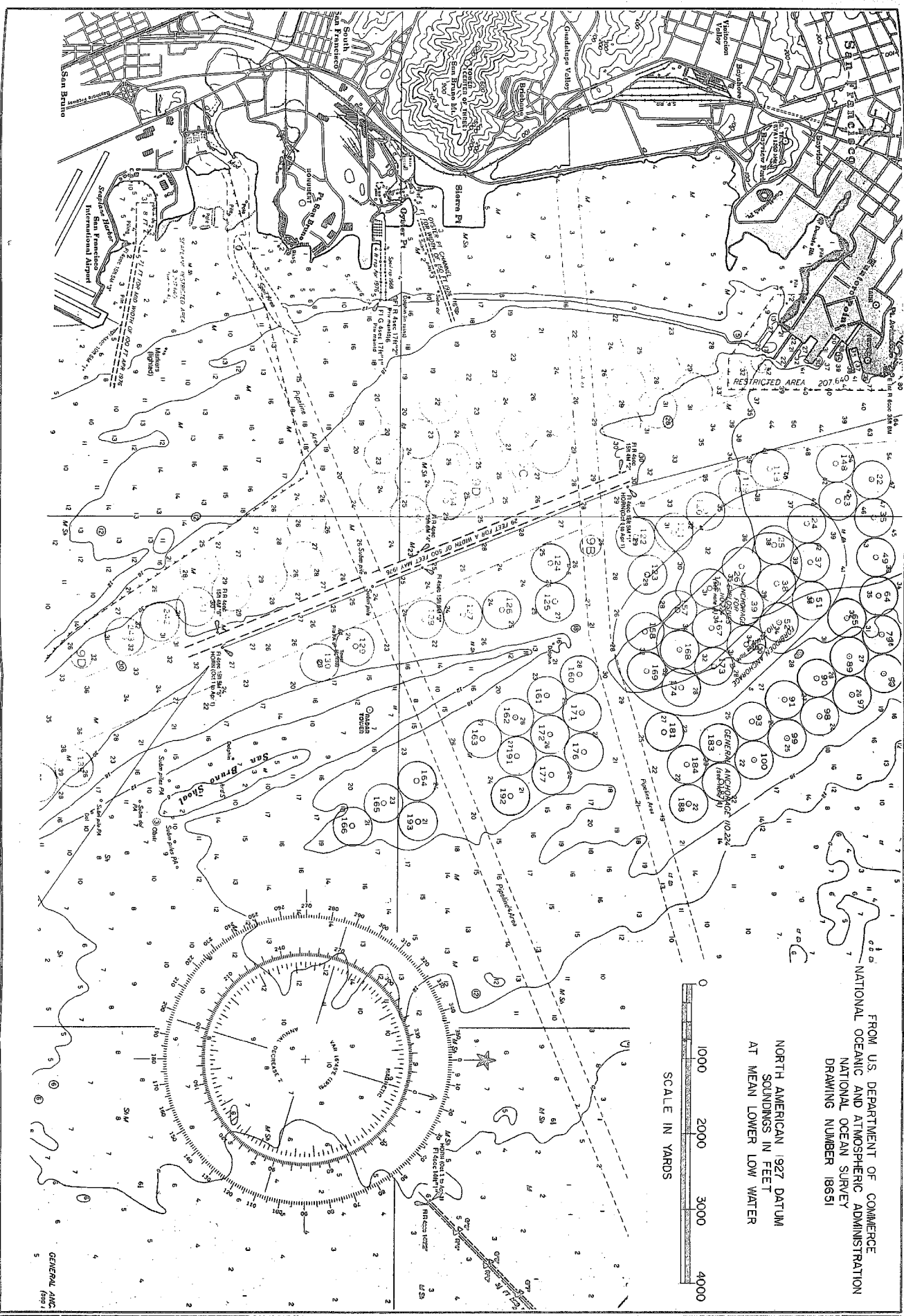


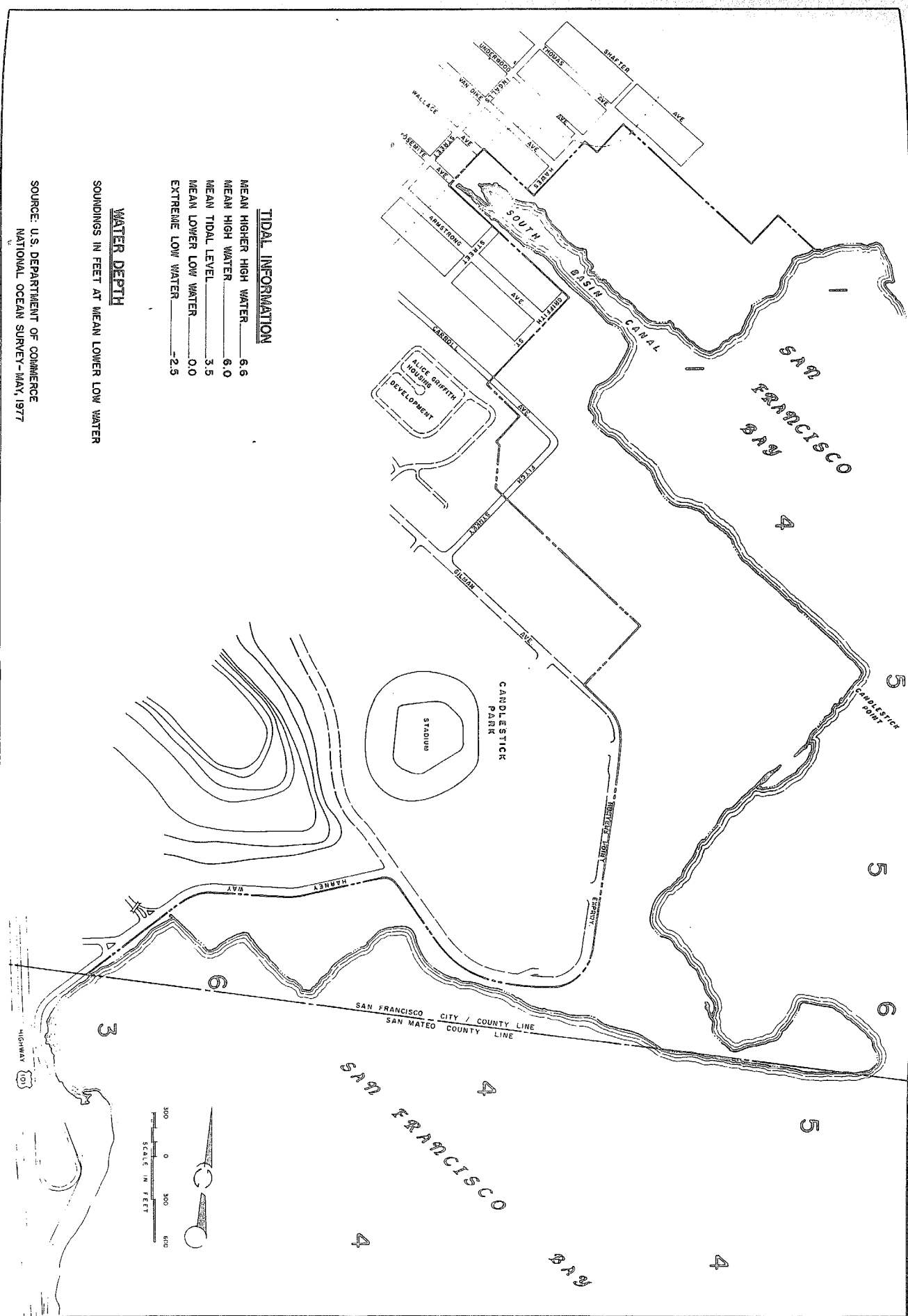
TIDAL DIFFERENCES		
	TIME IN HOURS	
	HIGH WATER	LOW WATER
GOLDEN GATE	0	0
VALLEJO	+1.41	+2.04
DUMBARTON BRIDGE	+0.48	+1.27
HUNTERS POINT	+0.30	+0.43

TIDAL DIFFERENCE: THE TIMING OF THE TIDES.
TIDAL CURRENTS 3 HOURS AFTER MAXIMUM EBB AT GOLDEN GATE.

0.5 SURFACE CURRENT DIRECTION AND SPEED
 SPEED GIVEN IN KNOTS: 1 KNOT = 1.7 ft/sec.

10 20 COUNT IN. DRAWING IN. 16263	CANDLESTICK POINT S.R.A. WATER MOVEMENT	RESOURCES AGENCY OF CALIFORNIA DEPARTMENT OF PARKS AND RECREATION APPROVED _____ DATE _____	REVISIONS _____	DATE _____	DESIGNED _____ DRAWN FEB. 1978 CHECKED _____





TIDAL INFORMATION

MEAN HIGHER HIGH WATER_____6.6
MEAN HIGH WATER_____6.0
MEAN TIDAL LEVEL_____3.5
MEAN LOWER LOW WATER_____0.0
EXTREME LOW WATER_____ -2.5

WATER DEPTH

SOUNDINGS IN FEET AT MEAN LOWER LOW WATER

SOURCE: U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEAN SURVEY-MAY, 1977

HOW THE SAN FRANCISCO BAY REGION WAS FORMED

TIME SCALE	YEARS AGO	GEOLOGIC TIME	EVENT
OVER 180 MILLION	180 MILLION	JURASSIC	OLDEST ROCKS KNOWN IN THE BAY AREA FORMED BEDROCK "BASEMENT COMPLEX."
180 MILLION	180 MILLION	CRETACEOUS	FRANCISCAN FORMATIONS DEPOSITED IN DEEP NARROW TROUGHS PRODUCED PRESENT DAY EXPOSED BEDROCK. (DEPTH ESTIMATED FROM 10,000 TO 30,000 FEET THICK.)
70 MILLION	70 MILLION	NOXVILLE	SEDIMENTS DEPOSITED ON BEDROCK FORMED SHALE AND SANDSTONE.
18 MILLION	18 MILLION	TERTIARY	EARTH MOVEMENT IN NORTH-WESTERLY TRENDING PATTERN FORMED COAST RANGE THROUGH FOLDS (BENDS) AND FAULTS (BREAKS).
3 MILLION	3 MILLION	MIOCENE	EROSION TO EAST AND WEST OF NEWLY FORMED HIGH STANDING RIDGES FORMED ROUNDED HILLS.
1 MILLION	1 MILLION	PLIOCENE	WARPS AND FAULTING OF SAN FRANCISCO-BAYERN "TABLE" PRODUCED EXISTING BAY CONFIGURATION, THE TABLE TIPPED AND THE RAISED WESTERN EDGE BECAME THE SAN FRANCISCO-BAYERN HILLS WHILE THE DEPRESSED EASTERN EDGE PRODUCED THE BAY TROUGH.
PRESENT	PRESENT	ILLINOIAN GLACIATION	BAY TROUGH FILLED WITH SEDIMENTS FROM GLACIER MELT WATERS FORMING PRESENT DAY "BAY MUD" AND SEA WATER LEVEL.

GEOLOGIC SIGNIFICANCE

1. NATURAL ENVIRONMENT

- THE GEOLOGIC FORMATION OF THE BAY REGION IN PREHISTORIC TIMES FORMED THE BASIC ELEMENTS FOR COMPLEX ECO-SYSTEMS.
- SINCE PREHISTORIC TIMES TO THIS DATE THE BAY AREA HAS BEEN KNOWN TO BE ONE OF THE MOST ACTIVE SEISMIC ZONES IN THE WORLD.

2. SOCIAL ENVIRONMENT

- THE PRIME ESTUARY CONTAINING AN OPTIMUM FOOD GATHERING SOURCE PROVIDED A BASE FOR AN URBAN SOCIAL ENVIRONMENT.

STRUCTURAL SITE CONSIDERATIONS

1. SEISMIC

EARTHQUAKE EFFECTS

- SHAKING OF THE GROUND
- GROUND FAILURES
- SLIDES
- COLLAPSION
- LIQUEFACTION
- LURCHING
- INUNDATION
- SEICHES (WATER OSCILLATION)
- TSUNAMIS (LARGE WAVE)
- SURFACE FAULTING (BREAKING OF THE GROUND)

2. EXISTING UNSTABLE SOIL

MAN-MADE FILL

- SUBSIDENCE AND DIFFERENTIAL SETTLEMENT
- DECOMPOSITION OF FILL
- METHOD OF FILL
- LANDSLIDING AND SLOPE INSTABILITY

SOFT BAY MUD

- SUBSIDENCE AND DIFFERENTIAL SETTLEMENT
- WEAK SOIL PROPERTIES (PEAT LENSES)
- SAND LENSES - NON-UNIFORMITY OF SOIL STRATA
- SURCHARGE LOADS

- LANDSLIDING AND SLOPE INSTABILITY
- EMBANKMENTS OR MOUNDS
- EXCAVATIONS OR CUTS
- DOWN-DRAW ON PILE FOUNDATIONS

3. OTHER CONSIDERATIONS

MAN-MADE

- VIBRATION
- SOUND (FREIGHT AIRCRAFT)
- BLASTING (CONSTRUCTION)
- WATER
- POLLUTION (EXISTING OUTFALLS, RUNOFF)
- EROSION
- AIR POLLUTION
- WADALISM

NATURAL

- WIND (PREVAILING WIND FROM SE 7-10 KNOTS, 8-11 MPH)
- PRECIPITATION (16"-20" AVERAGE ANNUAL RAINFALL)
- TEMPERATURE (56°-64° F AVERAGE)
- SOLAR EXPOSURE
- OXIDATION (SALT AIR, RUST)

CANDLESTICK POINT STATE RECREATION AREA
GEOLOGIC TIME TABLE &
STRUCTURAL CONSIDERATIONS

RESOURCE AGENCY OF CALIFORNIA
DEPARTMENT OF PARKS AND RECREATION

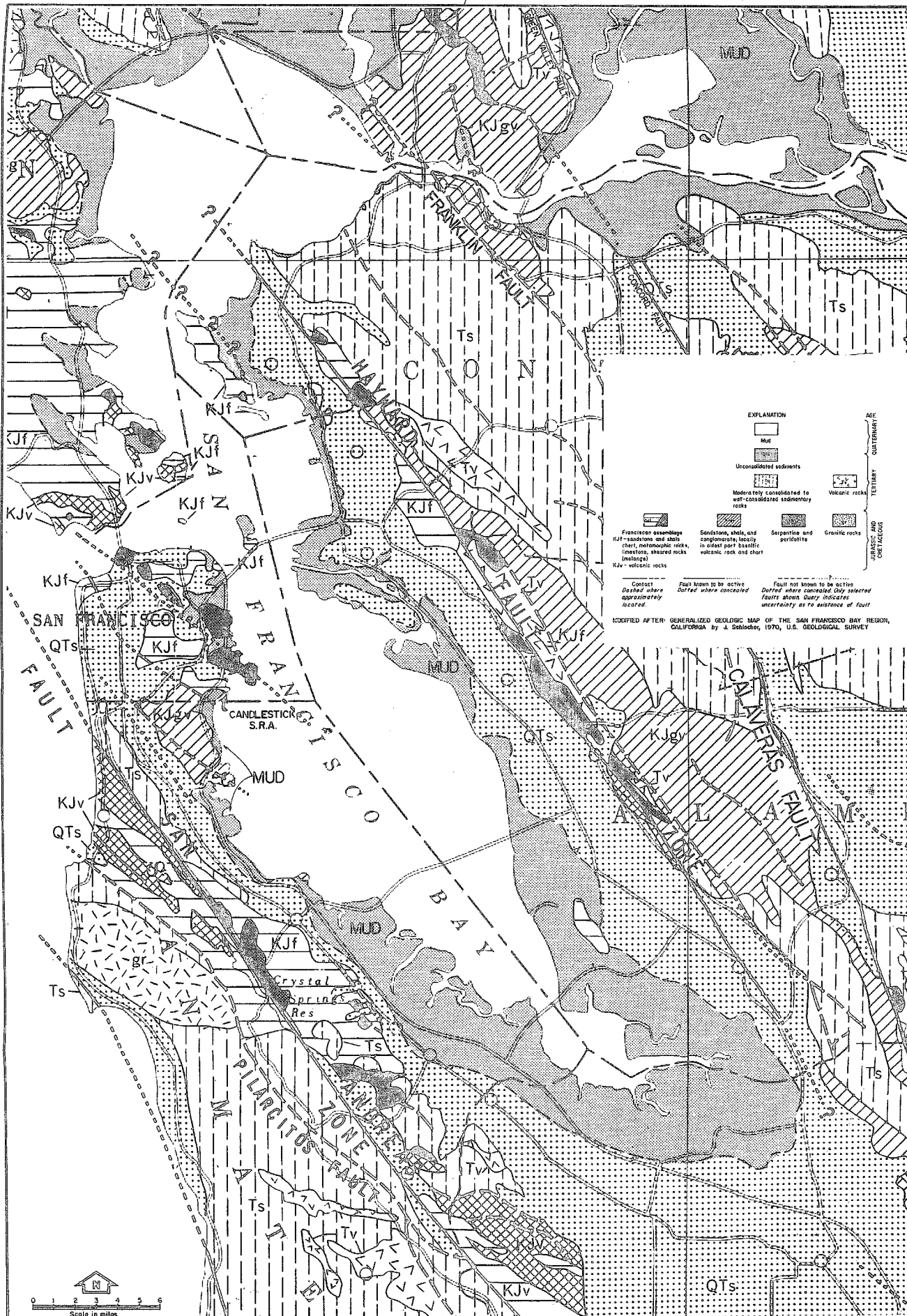
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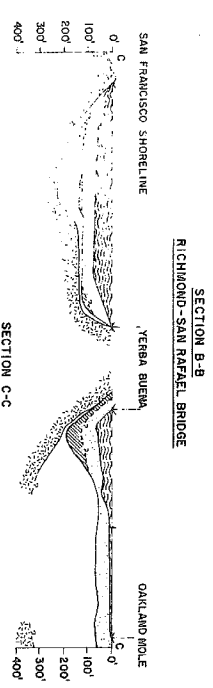
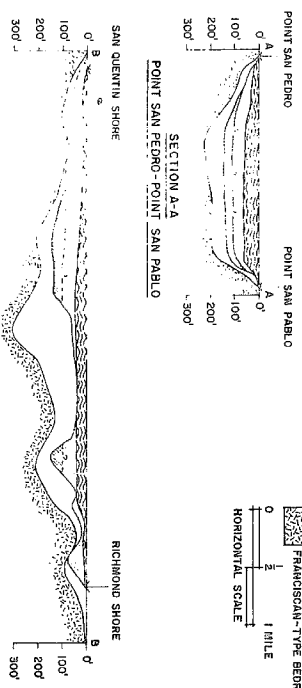
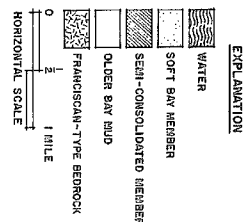
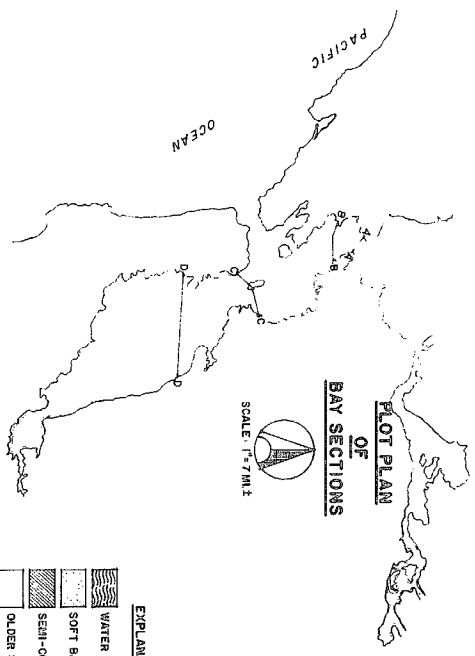
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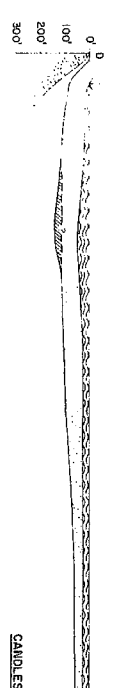
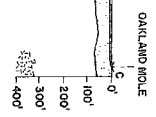


16263 14 20	CANDLESTICK S.R.A. REGIONAL GEOLOGY MAP		GEORGE AGONY OF CALIFORNIA DEPARTMENT OF PARKS AND RECREATION	REVISIONS DATE	DESIGNED DRAWN CHECKED
	APPROVED: _____ DATE: _____		APPROVED: _____ DATE: _____		
	SCALE IN MILES 0 1 2 3 4 5 6		16263		



SAN FRANCISCO SHORELINE

SECTION C-C
SAN FRANCISCO - OAKLAND BAY BRIDGE



ENGINEERING PROPERTIES OF SEDIMENTS OF THE SAN FRANCISCO BAY

PROPERTIES	OLDER BAY MUD	YOUNGER BAY MUD	
		Semi-Consolidated Member	Soft Member
Degree of preconsolidation	Greater than weight of overlying sediment and bay mud, that of some consolidated member	Greater than weight of overlying sediment, but less than that of soft member. It is about one-half that of the underlying older bay mud	Normal consolidation
Increase in density on drying	High dry density (unit to very stiff) (Schliedter and others 1958)	Marked decrease in dry density (as the rate of 10 to 25 lbs. per cu. ft.)	Less than 10 lbs. per cu. ft.
Average water saturated weight	111 lbs. per cu. ft.	110 lbs. per cu. ft.	97 lbs. per cu. ft.
Average weight submerged in water	64 lbs. per cu. ft.	47 lbs. per cu. ft.	34 lbs. per cu. ft.
Average moisture content	Less than 40 percent	About 40 percent	Greater than 40 percent
Compressive strength	1,000 to 4,000 lbs. per sq. ft.	1,000 lbs. per sq. ft.	200 lbs. per sq. ft. (strength is a function of friction stress)
Foundation characteristics	GOOD Foundation for piles and other similar structures of any size but heavy, consolidated mud	FAIR Foundation for small piles or structures of moderate weight	POOR Piles, and other similar structures tend to sink of their own weight
Special properties			Some of the soft mud, when wet, tends to disintegrate when dried in air Tensile strength is low Tensile strength is low Tensile strength is low
Origin	Results from flocculation of clay colloids in salt water. Tends to disintegrate when placed in fresh water		
Thickness	Up to 200 feet	Up to 60 ft., 40 ft. average	Up to 70 ft., 60 ft. average
Physical properties and interstratification	Firm clay with varying amounts of silt and lenses of sandy clay, sand and gravel. It is a mixture of 50 percent normal and 50 percent old, plus montmorillonite, quartz, calcareous material, quartz, calcareous material, and others (Schliedter and others 1958)	Plastic, clay, clay, and clayey silt, with varying amounts of organic matter, clayey fine-grained sand, and some shell fragments. It is a mixture of 50 percent normal and 50 percent old, plus montmorillonite, quartz, calcareous material, quartz, calcareous material, and others (Schliedter and others 1958)	Plastic, clay, clay, and clayey silt, with varying amounts of organic matter, clayey fine-grained sand, and some shell fragments. It is a mixture of 50 percent normal and 50 percent old, plus montmorillonite, quartz, calcareous material, quartz, calcareous material, and others (Schliedter and others 1958)

SOURCE: CALIF. DIVISION OF MINES & GEOLOGY, SPECIAL REPORT 82, BY RAY C. TREASHER, 1953.

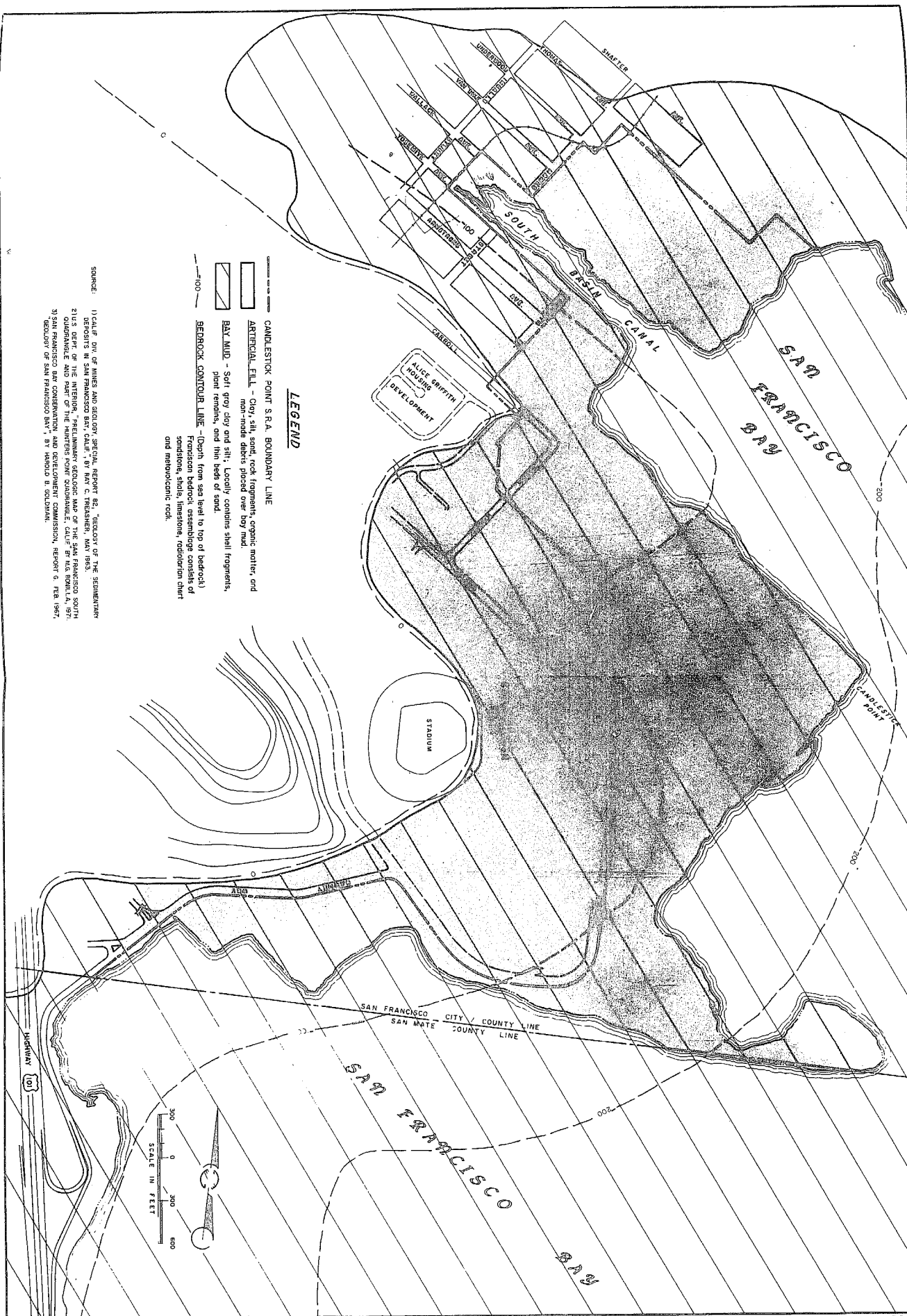
ROBERTS LANDING SHORELINE

CANDLESTICK POINT SRA
BAY MUD PROPERTIES
& SECTIONS

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF PARKS AND RECREATION

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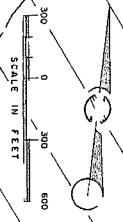
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SOURCE: 1) CALIF. DIV. OF MINES AND GEOLOGY SPECIAL REPORT 82, "GEOLOGY OF THE SEDIMENTARY DEPOSITS IN SAN FRANCISCO BAY, CALIF.", BY NAT. C. TREASHER, MAY 1953.
2) U.S. DEPT. OF THE INTERIOR, "PRELIMINARY GEOLOGIC MAP OF THE SAN FRANCISCO SOUTH QUADRANGLE AND PART OF THE HUNTERS POINT QUADRANGLE, CALIF." BY A.L. BOWEN, 1971.
3) SAN FRANCISCO BAY CONSERVATION AND DEVELOPMENT COMMISSION, REPORT 9, FEB. 1967, "GEOLOGY OF SAN FRANCISCO BAY", BY HAROLD B. GOLDMAN.

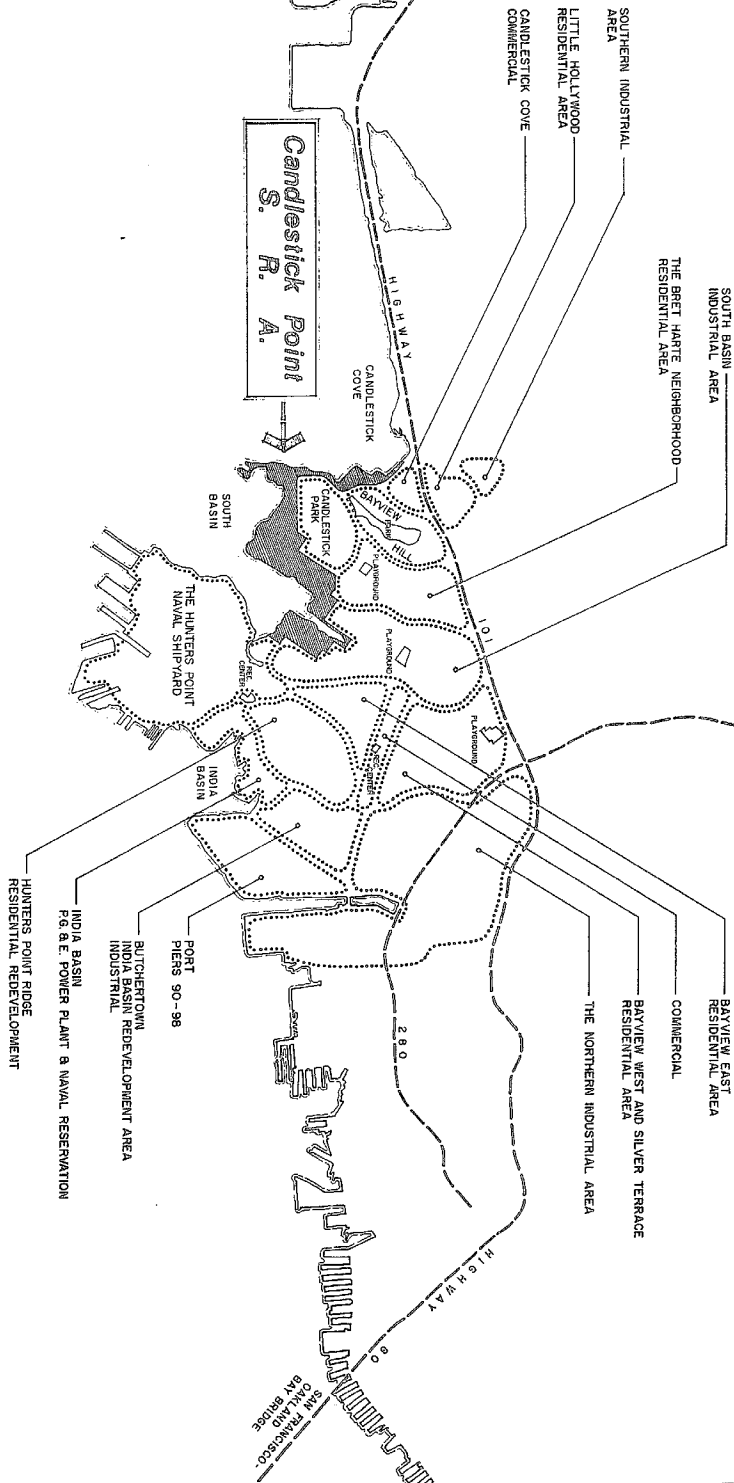
LEGEND

- CANDLESTICK POINT S.E.A. BOUNDARY LINE
- ARTIFICIAL FILL - Clay, silt, sand, rock fragments, organic matter, and man-made debris placed over bay mud.
- BAY MUD - Soft gray clay and silt. Locally contains shell fragments, plant remains, and thin beds of sand.
- BEDROCK CONTOUR LINE - (Depth from sea level to top of bedrock) Franciscan bedrock assemblage consists of sandstone, siltstone, limestone, radiolarian chert and metavolcanic rock.

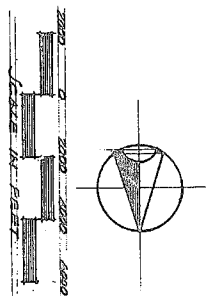


16 20	16263	CANDLESTICK POINT STATE RECREATION AREA PLOT PLAN - ARTIFICIAL FILL AND BAY MUD LIMITS	RESOURCES AGENCY OF CALIFORNIA DEPARTMENT OF PARKS AND RECREATION	REVISIONS	DATE	DESIGNER: C. HOREL
			DATE	DRAWN: JAN. 1978	CHECKED	

SAN FRANCISCO



SAN FRANCISCO BAY



CANDLESTICK POINT S.R.A.
EXISTING LAND USE

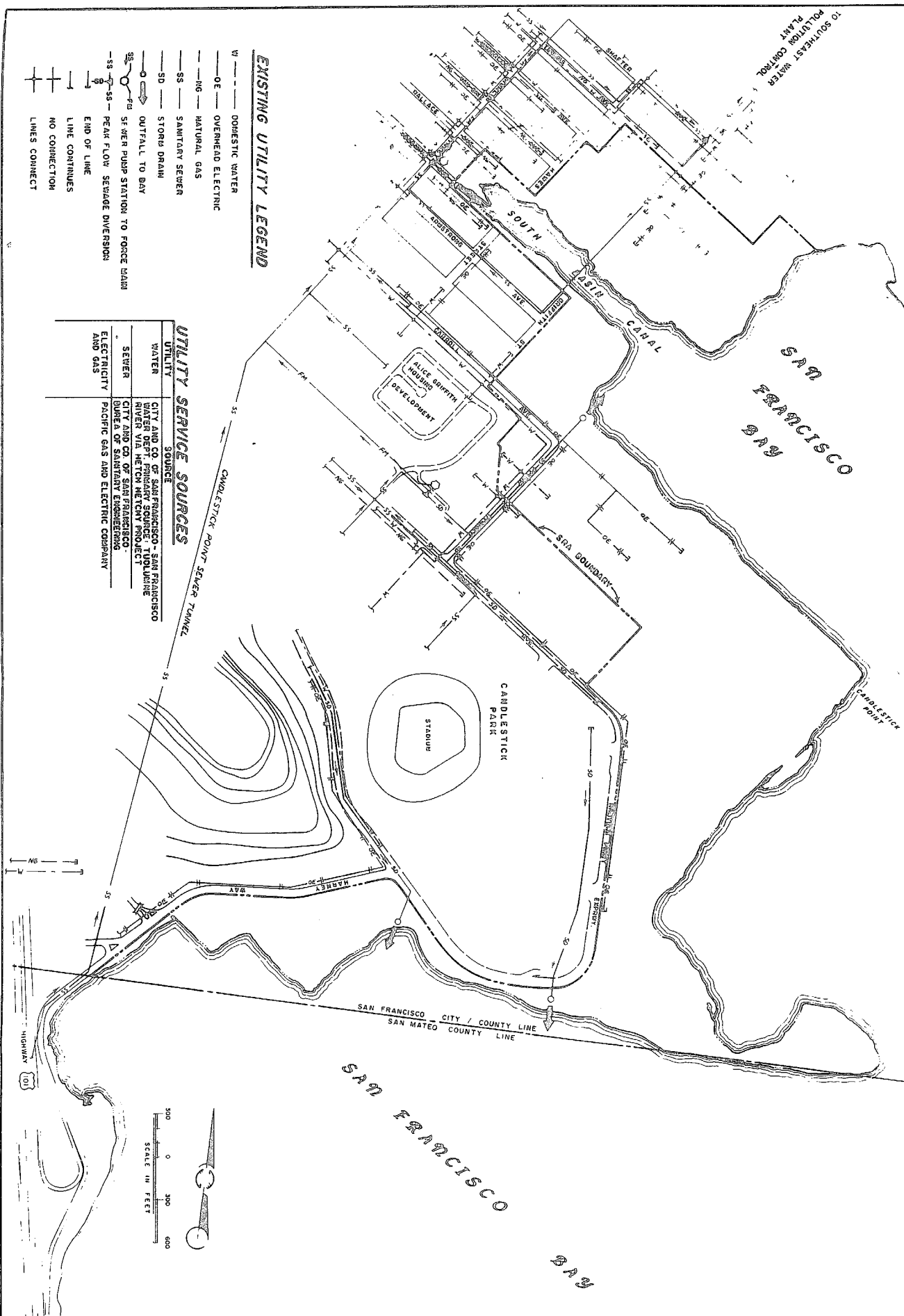
RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF PARKS AND RECREATION

APPROVED _____ DATE _____

DESIGNED	DATE	REVISIONS

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18 20	16263	CANDLESTICK POINT STATE RECREATION AREA EXISTING UTILITIES PLOT PLAN		RESOURCES AGENCY OF CALIFORNIA DEPARTMENT OF PARKS AND RECREATION	REVISIONS	DATE	DESIGNED C.A.H. 1/78
				APPROVE	DATE		DRAWN C.A.H. 1/78
							CHECKED

LEGEND

NO. OF VEHICLE PARKING SPACES
(TOTAL = 6,150)

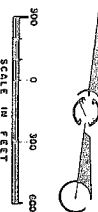
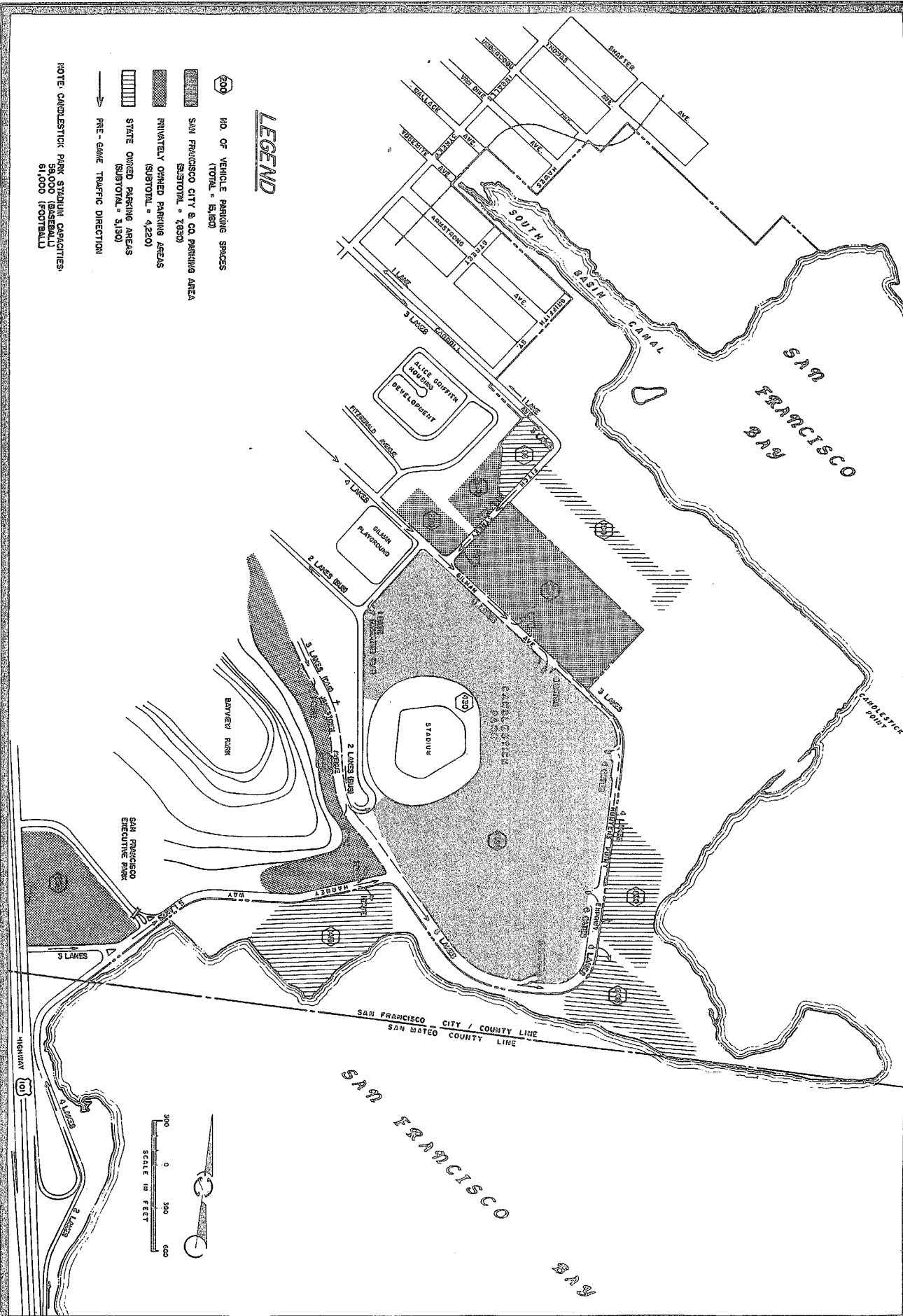
SAN FRANCISCO CITY & CO. PARKING AREA
(SUBTOTAL = 7,030)

PRIVATELY OWNED PARKING AREAS
(SUBTOTAL = 4,220)

STATE OWNED PARKING AREAS
(SUBTOTAL = 3,130)

PRE - GAME TRAFFIC DIRECTION

NOTE: CANDLESTICK PARK STADIUM CAPACITIES:
58,000 (BASEBALL)
61,000 (FOOTBALL)



CANDLESTICK POINT STATE RECREATION AREA PARKING AND CIRCULATION STUDY

(1 OF 2)

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF PARKS AND RECREATION

APPROVED:

DATE:

DESIGNED:

DATE:

DESIGNED:

CAN 4-70

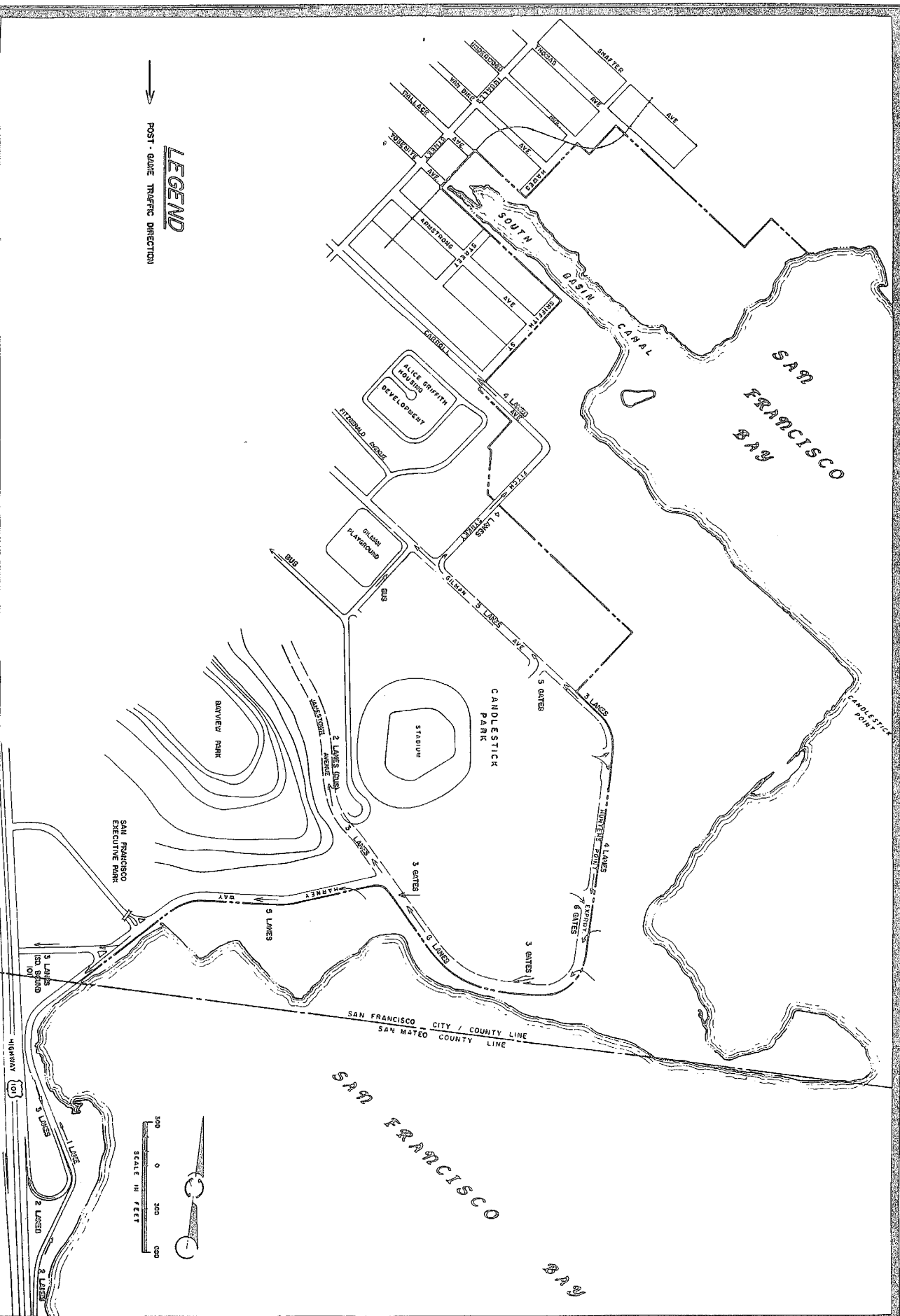
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16263
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 → POST - GAGE TRAFFIC DIRECTION



16263 20 20	CANDLESTICK POINT STATE RECREATION AREA PARKING AND CIRCULATION STUDY	RESOURCES AGENCY OF CALIFORNIA DEPARTMENT OF PARKS AND RECREATION	REVISIONS DATE	DESIGNED CAM 4-78 DRAWN VLS 8-78 CHECKED
	APPROVED: _____ DATE _____			